STUDIES IN GREEK COLOUR TERMINOLOGY

VOLUME I

ΓΛΑΥΚΟΣ

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LUGDUNI BATAVORUM E. J. BRILL MCMLXXXI

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BY

P. G. MAXWELL-STUART

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FOREWORD

My intention in writing this book has been to clear certain ground so that a more thorough and a more complete study can be made of the full range of Greek colour-terminology. That such work needs to be done must occur to anyone who either reads translations from the Greek or looks up the words in a lexicon. In the one, too often he will discover only puzzlement and in the other, confusion. Nor will he find that attempts to discuss Greek colour-terms assist him very far. As I have tried to point out in Chapter I, such studies, no matter what their age or provenance, have one thing in common; they assume that the Greeks did not see things as we do and that their defective vision accounts for a jejune or near-incomprehensible colour-vocabulary.

These assumptions it has been my wish to challenge in this book which should be regarded as the preliminary volume of a series in which every Greek colour-term will be discussed in full. My method has been to take prose-usage as the basis for establishing the principal meaning of each word, to record, and examine if necessary, every context in which the word is used, and then to repeat the process for verse-usage, re-interpreting or developing the meaning in the light of what prose-usage has revealed. I have also discussed the historical development of the term in both prose and verse, and the symbolic and emotional significance which they may have carried for the Greeks at any given time. In this way, I hope I have been able to show that there is nothing strange or ambiguous about the term, to correct well-established errors of judgment, and to reveal meanings and resonances which have hitherto lain neglected or concealed.

I think it important, however, that I make one or two points about the form I have adopted in writing the book. It is no use a reader's coming to the material with preconceived views about the 'paucity' of Greek colour-terms, or any notions about saturation, texture, reflective and non-reflective qualities, combinations of colours such as are present in man-made or natural surfaces, or any other such ideas derived from the revelations of modern photography. I cannot stress too forcibly that until we have re-examined, and re-examined with an open mind, actual Greek usage of a

colour-term in all its available contexts, we cannot begin to say whether the Greeks were or were not aware of such visual effects. So the word, in this case γλαυκός, must be shown at work in its contexts in order that this kind of judgment can be made from post-appreciation and not preconception.

Secondly, I have had in mind readers with two different requirements. There are those who wish to know whether a particular use of γλαυκός by a particular author is odd, normal, in need of explanation, consistent with his usual usage, or bizarre even within his own range of vocabulary. For such readers I have arranged references under the author's name, and the authors in alphabetical order, prose writers followed by verse. This, Chapter II, is therefore in the nature of a detailed lexicon and does not have to be read from start to finish — although, of course, it can be. This arrangement enables a reader to make a quick check on the word's usage and meaning in that context, as though he were looking it up in a dictionary.

The accumulated evidence of all these examples is what provides the basis for Chapter III which is a discussion of the chronological development of the word's meaning. Here one can see how new meanings are added to the word, how old nuances disappear, how clichés are born: so for those who want a history of γλαυκός, this chapter can be read without constant reference to Chapter II. In other words, the book is actually two slightly different books under the same cover and is not necessarily meant to be read from first page to last as a connected essay, although inevitably the evidence from one part has relevance for the material in the other.

One critic suggested that a better arrangement would have been to group the quotations where the word is applied to the same object or class of objects so that, for example, once it had been shown that γλαυκός could be used of the sea, all other such examples could simply be listed as references. Unfortunately this would not allow a reader easily to check that the example he had come across was one of normal or abnormal usage; but worse, it would not let him compare this usage with the author's usage of γλαυκός in relation to other objects, a comparison which might be particularly revealing. Another critic complained that when γλαυκός was applied to eyes it referred primarily to a variegated effect, since blue-grey eyes are frequently less uniform in appearance than brown, and so the word would mean something like 'of blue-grey type'. I shall not refrain

from pointing out that when we speak in English of 'blue' eyes we probably mean 'of blue type' but actually say just 'blue', and that there is no reason to suppose Greek usage was any different. But when English speaks of 'blue' eyes, it does not then go on to assume that the word 'blue' does not basically mean 'blue' but 'having a surface with reflective areas upon a dark or matt surface background,' and is not therefore exclusively a colour-term. Yet this is precisely the line of argument which a third critic tried to follow in his efforts to deny that Greek colour-vision was *not* particularly deficient and that its colour-vocabulary was *not* the jejune affair scholars have so far assumed it to be.

Such curious intransigence, however, is only one of the difficulties I have had to face: composition of the book itself has taken place under circumstances which I can only call disadvantageous. Perhaps I could do worse here than quote the reply of James Murray, first editor of the *Oxford English Dictionary,* to suggestions (many ill-conceived) made by Delegates of the Press for preparing the work to their (not Murray's) satisfaction. "On such points," he said, "no two men will ever spontaneously see alike.... I do not expect that my treatment of words, especially difficult words, will strike other people as that which they would have adopted.... The most that can be expected is 'this is not an unreasonable way of exhibiting the facts' ".

Critics apart, many gentlemen have answered my queries on specific points and I have acknowledged their help in the body of the text. I should like, however, to record here my particular thanks to Mr. D. I. Bowen for his advice on ophthalmological matters, to Dr. J. T. Killen and Dr. D. J. Crawford for reading the completed text, and to Mr. T. R. Bowen for his help and encouragement while it was being written.

ABBREVIATIONS

For the most part I have followed the abbreviations used by *L'Année Philologique.* Titles of papyri appear according to the system adopted in the new LSJM. In addition, I have employed

CCAG	*Catalogi Codicum Astrologorum Graecorum.*
CVA	*Corpus Vasorum Antiqorum.*
LSJM	Liddell-Scott-Jones-McKenzie: *Greek-English Lexicon.*

CHAPTER ONE

INTRODUCTION

It is commonly agreed among those who are Classical scholars, and widely assumed among many who are not, that Greek sensibility of colour was, if not exactly deficient, at least inferior to our own. For this we may have to blame Goethe who discussed the question of Greek colour perception and terminology in a work, *Zur Farbenlehre,* published in 1810. "The ancients," he wrote, "derive all colours from white and black, from light and darkness. They say that all colours are between white and black and are mixed out of these... Their denominations of colours are not permanently and precisely defined, but mutable and fluctuating, for they are employed even with regard to similar colour both on the positive and negative sides. Their yellow inclines to red on the one hand and to blue on the other. The blue is sometimes green, sometimes red: the red is yellow on one occasion and blue on another. *Purpur* fluctuates between warm red and blue, sometimes inclining to scarlet, sometimes to violet. Thus, the ancients not only seem to have looked upon colour as a mutable and fluctuating quality, but appear to have had a presentiment of the physical and chemical effects of augmentation and reaction."[1]

Goethe's work was, more or less, an attempt both to restate and redefine pseudo-Aristotle's view that colour is a mixture of white and black, in the sense that light is darkened or has to be mixed with darkness to produce colours, and to refute Newton's conclusions about the nature of light, as published in his *Opticks* (1704),[2] an attempt, at least with regard to Newton's theories, vitiated by a tone unhappily informed by misunderstanding, abuse, and derision.[3]

But perhaps the most pervasive, as well as the most unfortunate, influence upon English discussion of Greek colour terminology is that of Gladstone who, forty eight years after Goethe had published his essay, not only repeated the argument that ancient colour terms were derived from contrasts between light and darkness but in addition took the view that those who lived during the earlier periods of man's recorded history possessed a faculty of perceiving colours

much less mature than our own. Gladstone summarised his notions thus.

"Among the signs of immaturity which I have mentioned, the following are found in the poems of Homer:

I. The paucity of his colours.
II. The use of the same word to denote not only different hues or tints of the same colour, but colours which, according to us, are essentially different.
III. The description of the same object under epithets of colour fundamentally disagreeing one from the other.
IV. The vast predominance of the most crude and elemental forms of colour, black and white, over every other, and the decided tendency to treat other colours as simply intermediate notes between these extremes.
V. The slight use of colour in Homer, as compared with the other elements of beauty, for the purpose of effect, and its absence in certain cases where we might confidently expect to find it."[4]

The tenor of these general propositions he later reinforced by saying, "The organ was given to [Homer] only in its infancy, which is now full-grown in us. So full-grown is it, that a child of three years in our nurseries knows, that is to say sees, more of colour, than the man who founded for the race the sublime office of the poet, and who built upon his own foundations an edifice so lofty and so firm that it still towers unapproachably above the handiwork not only of common, but even of many uncommon men."[5]

Since Gladstone was familiar with and approved of Goethe's work on colour,[6] one may see how easily misunderstanding can be perpetuated and made worse by subsequent theorisation. It may be imagined, however, that Gladstone's view represents an extreme position no longer held by commentators on Greek colour-terms, being an odd alliance of condescension with ignorance which modern scholarship will have dismissed or from which, at the very least, it will have retreated. But acquaintance with the literature must soon disabuse one of that hope.

In 1879, G. Allen, writing about Homer and the heroes of the *Iliad,* said, "The many brilliant objects of external nature for which we require such varied names... were of little importance in the eyes of those bloodthirsty savages,"[7] queer remarks for someone who was able to point out, in the same book, many examples of

men less civilised than the Greeks, who were yet not deficient in their perception of colour. The Ojibway Indians of North America, for example, clearly distinguished between blue and green, and between blue and violet. Certain South African tribes could do the same. Bushmen were able to distinguish red, yellow, green, blue, violet, purple, and orange. They had various compound names for compound colours and names for shades, examples of which are light purple, lavender, grey, stone-colour, brownish-green, and blue-green. The Samoans, too, had separate names for blue, green, violet, varieties of red, chocolate-brown, and could discriminate between mauve and lilac, orange and purple.[8] This being so, why should Allen have imagined that the Greeks were unable to do as much, unless the notion that they were deficient in this respect was already an assumption, *a priori*? This assumption, however, seems to spring from no better a cause than commentators' predisposition to demand that the Greeks see colours after our fashion, and to be critical of them when it appears they did not.

One of the most influential, and most quoted, discussions of the subject is an article by M. Platnauer, published in 1921. He had no hesitation in making this very point. "The Greeks' colour terminology is frankly defective as compared with that of the moderns. This may come from one of two causes: either that the Greeks were definitely colour blind, or at least that colours made a much less vivid impression upon their senses (which might account for their painting of statues), or, as I think is more likely, that they felt little interest in the qualitative differences of decomposed and partially absorbed light."[9]

The very notion that a whole people could suffer from defective vision is extraordinary, especially when one considers that most essays so far have done little more than consider the terminology of Homer and apply dubious findings about that to a thousand years of history, and Platnauer himself rejects it.[10] But it is remarkable that he felt obliged to record the idea as a tenable hypothesis.

His later point, however, that the Greeks were not moved by varieties of colour or shade, was taken up by A. E. Kober who made the first respectable attempt to consider evidence from a wider field than Homer and Plato. "It is not so much that the writers are colour-blind (in the medical sense)", she wrote, "since they are obviously capable of making distinctions that colour-blind individuals cannot make, as that they are lacking in an appreciation

of the beauty of colour, as distinguished from the material which is coloured, or from variations in light intensity, and seem, as a whole, almost entirely incapable of understanding that differences in the shades of a given colour exist.[11]

Her complaint is much the same as the others' — that the Greeks did not have a modern appreciation of colour. It does not seem to have occurred to her, or indeed to anyone else, to ask why they should have had. After all, the briefest of considerations will suggest at least two answers to that question. Our notions of colour are affected by our being accustomed to artificial colours which the Greeks never knew, and when we discuss colours we use a system quite different from that of the Greeks. Our interpretation is of a spectrum which, in its present form, is little more than a hundred years old.[12] Moreover, every discussion of colour so far has been based mainly on material drawn from poetry,[13] and this is surely a mistake, since verse has its own way of subduing or altering words to its own purposes in a manner rarely found in prose. Prose is more likely to reveal the normal usage and meaning of a word, verse deviations from those, so that unless one is familiar with a word's usual meaning, how is one to guess at its connotation?

As a last example of the shortcomings of criticism so far, let me quote from an article by H. Osborne, which was published in 1968. "The Greeks appear to have taken a somewhat childish delight in gaudy colour and to have been impressed mainly by brilliance... while their attention to differences of hue was far less prominent than our own in their total sensibility to colour impressions. Their standard admiration was accorded to the poecilon (*sic*), a garish pattern of brilliant and preferably primary colours... The Greek colour-vocabulary was jejune and the available terms were bunched into a small number of groups. Within each group the terms did not differentiate in virtue of hue but were either used indifferently as synonyms or differentiated in respect of brightness and intensity."[14]

With this the wheel seems to have turned full circle back to Gladstone. Here again is the assumption that because the Greeks lived so long before us, it follows their faculties were not as highly developed as ours, with the implicit complaint that their terminology does not encompass the whole range of modern scientific analysis. What distinguishes Osborne from Gladstone is his tone of

de haut en bas which is abrasive and unmollified by that admiration Gladstone had of the Greek achievement as a whole.

The main point of this polemic has been to suggest, as vigorously as possible, that the Greeks were as capable as we are of seeing and distinguishing a wide variety of colours,[15] and that one should ask, not whether the Greeks saw them, but in what manner, and how they expressed that experience in language.[16] Difficulties in the way of our comprehension certainly exist. To understand fully, we should need a full knowledge of Greek and that, unfortunately, we do not have. The spoken language has disappeared and much of the written, perished. What remains gives us glimpses, no more, of a few individuals' perception of colour.

Moreover, one cannot discuss their vocabulary in isolation. A great variety of other considerations needs to be taken into account. S. Fogelmark has summarised them very well. "We must take into account ethnology, artistic concepts, influence of cult and mythology, questions of religion, of magic, of symbolism and rites, and factors in the emotional and intellectual make-up of the individual such as age and sex.[17] Moreover, the experiences of the individual change from time to time according to his varying capacity for sense perception. Thus it should be obvious that psychological factors are of great importance for the proper understanding of the colour-word."[18]

What, then, can be done to solve, or advance some way along the road of solving, the problem of Greek colour terminology? Let me repeat what I said earlier, that most discussions until now have created some of their own difficulties by concentrating upon Greek poetry. One cannot rely on a poet to make use of a word in its normal prosaic sense. He is quite likely to employ it after an odd fashion of his own. But unless one knows how the word is normally used and understood, it will be impossible to guess whether he is making an attempt to be more exact, or clever, or witty, or dramatic, or obscure, or even, in the case of colour-terms, whether or not he is actually colour-blind.[19] One needs to establish, first of all, the normal prosaic meaning of the colour-word, and this can be done only by examining every occasion it appears in prose. If it is found that the word refers, on a significantly large number of occasions, to objects readily identifiable as having a certain colour, (I say nothing of shade, hue, or tint for the moment), then it will be

safe to assume that the normal sense of that word is that particular colour. Any deviation will be odd, and may need explanation.[20]

Let me give a brief example of what can happen if one investigates a colour-term more thoroughly than usual. Homer's "οἴνοπα πόντον" has puzzled commentators, and given rise to the Romantic epithet 'wine-dark', which English readers seem to find appealing.[21] In prose, the adjective is used as follows.

a) Aristotle, fr. 347: referring to the rock-dove (*Columba livia*). The bird's head and shoulders are a pinkish to light purple shade.[22]
b) Pseudo-Aristotle: *De Coloribus* 2 (792b.2-11). The colour occurs when the sun's rays are mingled with pure μέλας.[23] Grapes on the point of ripening are said to be οἰνωπός.
c) *Ibid.* 5 (795b.26-28). Ripening grapes and dates turn οἰνωπός.
d) *Ibid.* 5 (796a.8-9). The juice of all μέλανες fruits is οἰνωπός.
e) *Physiognomica* 6 (812b.6). Those whose eyes are οἰνωποί are gluttonous, like goats.[24]
f) Epiphanius: *De Gemmis* 9 = Migne, P.G: 43.300. The colour of the amethyst.
g) Hippocrates: *Epidemiae* 7.3 = Littré 5.370. The stools of those suffering from dysentery.[25]
h) *Morba Muliebra* 2.111 = Littré 8.238. Hippocrates lists three degrees of complexion in women, which may serve as a guide to the physician wanting to know who is liable to suffer from what kind of flux. There are the very pale (ὑπέρλευκαι), the dark (μέλαιναι), and those in between (οἰνωποί). I guess that the last refers to a tanned skin, (as opposed to the untanned or naturally olivine), coloured, perhaps, with rouge, though sun-tanning may well produce a reddish-brown tint of its own.
i) Philo of Carpasia: *Enarratio in Canticum Canticorum* 188 = Migne, P.G: 40.120. The pomegranate. This may vary from brownish-yellow to red.[26]
j) Theophrastus: *H.P.* 3.16.3. When the bark of the holm-oak (*Quercus suber*) is removed, the colour of the wood is seen to be paler (λευκότερον) than that of the kermes-oak, but ruddier (οἰνωπότερον) than that of the oak (*Quercus robur*).
k) *Ibid.* 3.18.2. Some varieties of *Vitex agnus-castus* have flowers which are crimsonish (ἐπιπορφυρίζει), not οἰνωπόν or off-white (ἔκλευκον) as in the others.[27] Theophrastus says there are two varieties of the plant, λευκός and μέλας. According to Pliny, the latter

bears blossom which is crimson (*purpureum*), and the seed, taken in drink, has a taste somewhat like wine.[28] I suspect it is this association with wine rather than colour which caused Theophrastus to use the word οἰνωπός, since no variety of the plant bears flowers which are in the least reddish-brown.

l) *De Lapidibus* 31: the colour of the amethyst.[29]

The result of this survey is obvious. Οἰνωπός is a colour term referring, on the whole, to deep reddish-brown, and its meaning remained constant during a period of some eight hundred years. One may refer to this as its 'normal' meaning, the derivation and associations of which need no explanation.[30] Now, what happens to the term in verse? I am going to put Homer aside for the moment and briefly review other poets' usage.

a) *A.G.* 7.20 (Anon.): grapes.
b) Euripides: *Bacchae* 236. Part of a description of Bacchus himself. "Flushed with wine" preserves the colour term; "tipsy" is the extra association.[31]
c) *Ibid.* 438: Bacchus's cheeks.
d) *I.T.* 1245: the serpent at Delphi. It is described as ποικιλόνωτος, οἰνωπός, and κατάχαλκος. The first adjective describes the creature's scales, the last its texture and colour. One is to be reminded of a suit of bronze armour made from overlapping metal plates. Homer called this metal ἐρυθρός, probably because of its high copper content.[32] Οἰνωπός, then, refers to this colour. But it has another function as well — not only to mean *wine-coloured,* but also *wine-eyed.* The eyes of a drunk are angry and bloodshot, as Adamantius said. So the implication is twofold: the snake has red eyes, and it is angry and likely to be violent.[33]
e) *Orestes* 115: wine.[34]
f) *Phoenissae* 1160: cheeks smeared with blood.
g) *Cretans,* verse 15: the gleam of light shining from the eyes and πυρσῆς hair of Pasiphäe's bull.[35]
h) *Hypsipyle,* fr. 64^{111}: the grape.[36]
i) *Hymnus Atheniensis in Apollinem* II^{7}: a shoot of laurel. This cannot be the *Laurus nobilis,* which has black bark, dark green leaves, yellowish flowers, and black berries, because the description does not fit. The phrase is very exact — a shoot or twig of laurel, (οἰνῶπα δάφνας κλάδον) — and reminds one of the Portugal laurel (*Prunus lusitanica*) whose twigs and stalks do have a reddish tinge to them.[37]

j) *A.G.* 6.44 (Leonidas of Tarentum?). A description of Bacchus to whom wine has been dedicated.
k) Nicander: *Alexipharmaca* 490: pomegranate.
l) Nonnos: *Dionysiaca* 3.151: pomegranate.[38]
Ibid. 7.100: ivy. It is called οἶνοψ because one wore a wreath of ivy to protect oneself from becoming 'wine-eyed', that is to say, drunk.[39]
Ibid. 8.195. Dionysus in the womb of Semele is described as ἤνοπι δίφρῳ, as though he were a ripening grape.
Ibid. 12.95: grapes.[40]
Ibid.. 13.139: the robe in which the baby Bacchus was wrapped.
Ibid. 13.227: Bacchus himself.[41]
Ibid. 14.304. The thyrsus, often used as a weapon by Bacchus and his followers, and so dabbled with blood.[42] Cf. Euripides: *Phoenissae* 1160. But it was also the symbol of those liberated by wine from the normal constraints of civilised behaviour — wine and drunkenness are leading motifs of the poem — and so the thyrsus itself assumes the characteristics of those who carry it, being 'wine-eyed', or drunk, like them.
Ibid. 18.77: the amethyst.
Ibid. 18.91. The decoration of King Grape's palace. Rubies, amethysts, agates, and the reddish glow of gold (82) are the principal colours. Hence, οἰνωπός is appropriate to describe the effect of the whole.
Ibid. 18.328: the chariot belonging to Bunch-of-Grapes.
Ibid. 18.343: the cheeks of Lady Drunk.
Ibid. 19.194: wine.
Ibid. 20.12: a robe for Lady Drunk.
Ibid. 41.363: vermilion.
Ibid. 42.265: women's cheeks flushed with grief, (cf. 237).
Ibid. 43.87. A wreath of vine-leaves for Palaemon, the sea god. This phrase, 'wine-coloured / wine-eyed / dark red bond', is meant to indicate that the god will act as a servant for Dionysus. He is bound to the wine god, to do his pleasure, which is that he act as charioteer for Rheia during the forthcoming battle with the sea. There is, therefore, an allusion to the Homeric phrase 'οἴνοπα πόντον'. Notice that the leaves are used as whips (36); they are called missiles (67); the whole passage is redolent of violence and blood. Δεσμῷ suggests compulsion, bloody if necessary.
m) Nonnos: *Paraphrasis in Joannem* 15[2] = Migne, P.G: 43.872. The grape.

Ibid. 19[24]: a robe worn by Jesus. This passage comes at the end of a visionary sequence in which Jesus has appeared as King of Heaven. There is meant to be interplay between Royal 'purple', the soldier's scarlet cloak put round His shoulders in mockery, and the blood-stains from His scourging which have disfigured His tunic.
n) Orphic *Argonautica* 99: the sea.
o) *A.G.* 11.36 (Philippus): the flushed cheeks of a pretty boy.
p) Sophocles: *O.C.* 674. Ivy. *O.T.* 211: the cheeks of Bacchus.
q) Theocritus: 22.34. Polydeuces's complexion. Here the word probably refers to his deeply tanned cheeks. Cf. Hippocrates: *Morba Muliebra* 2.111. A.S.F. Gow translated it by 'swarthy'.
r) Tryphiodorus: *Ilias* 521. Helen's arm on which firelight is playing.

From this it can be seen that οἰνωπός is frequently used by poets as a simple colour term. Its connotations, however, are drunkenness, blood, and the abandon which accompanies surrender to alcohol and so, through those associations, it can be made to imply unsteadiness, violence, anger, and even death. Now, Homer used οἰνωπός of only two objects; twice of cattle, when it is obviously meant to be a simple colour term,[43] but many times of the sea, when it is not.[44] Any attempt to account for redness of the sea founders upon inappropriateness or improbability. For example, one may try to explain that the Mediterranean is red at sunset, but in that case, how does one account for the frequent use of πορφύρεος in connection with the sea?[45] Can the sea be so often red? If both adjectives are to be taken as colour terms in these cases, one has to allow that Homer's heroes did a remarkable amount of their sailing either in sunrise or in sunset hours.

A. E. Kober tried another explanation. "Light reflected by water assumes strange colours at times. The most serious objection to the translation 'red sea' is that Homer used the epithet οἶνοψ of the sea casually; even to him a 'red sea' must have been extraordinary. Another explanation...lies in the colour of the different wines... The unmixed wine of the Greeks must have been almost black in colour".[46] Only μέλας could agree with this picture. Other epithets for wine — ἐρυθρός, αἶθοψ, λευκός, κιρρός, ξανθός, to give only five — cannot be explained away as descriptions of diluted wine.[47] I shall indicate that Homer did not employ the term 'casually': indeed, it appears in very particular circumstances. Besides, surely this talk of

wine concentrates on only one part of the word. It attempts to account for οἰν — but forgets οψ.

Nor is a scientific approach any happier. Occasionally the sea looks red because of the presence of algae, (an example being the Red Sea itself), one of which, *Gonyaulax polyedra,* produces the 'red tides' of the west coast of California; another, *Gymnodinium brevis,* those off the coasts of Mexico and Florida; a third, *Glenodinium sanguineum,* red discolouration not only of the sea but of inland lakes as well. The sea may look red, too, because of some other substance in the water, such as may be seen off the west coast of Africa whose "water has a red tinge, with a thick muddy appearance, so that the track of a vessel is visible for some time."[48] This phenomenon, however, caused by huge quantities of sand blown from the desert, is probably modern, and red seas occur only in special circumstances. The context of οἶνοψ and πορφύρεος shows that there is no particular indication of sunset, and certainly no hint that the ships were near red-soiled land.

One is left, therefore, to suggest that the image arises purely from the poet's imagination. But imagination does not work in a vacuum: something must trigger the connection between one object and its description. For example, I can use the phrase 'green-fingered' and be understood without difficulty. I am referring to someone's abilities as a gardener, but I am still using a colour term because there is some association, however remote, between his fingers and the green plants he is trying to grow.

In the same way, there must have been some reason for Homer's choosing to use οἶνοψ and πορφύρεος in contexts involving the sea, and I am going to presume that he was too accomplished an artist simply to be governed by the exigencies of metre. Surely Nonnos, who was so steeped in Homeric language, has indicated, several times, the way to understand Homer's train of thought. The οἶνοψ sea is wine-eyed, drunk, rolling about, possibly violent, dangerous, 'bloody' in the sense of lethal. On several occasions, the adjective is applied to a sea made choppy by strong winds; Odysseus uses it when he describes how he escaped from a storm at sea; and on two other occasions, the οἴνοπα πόντον spells danger by drowning after such a storm.[49] The translation 'wine-dark' conveys none of this, because it attempts to render only the most simple colour association, and this is one reason for one's being ware of using poetry alone to define colour terms, or of trying to interpret poetry without

first having ascertained the full range of the word's possible meaning.

I hope, then, that this exercise has illustrated a number of points. First, that Greek colour terms are not as simple as they appear and need very careful interpretation; secondly, that a discussion of all the available evidence is required, not just part of it; thirdly, that one must establish the normal meaning of the word first before one can begin to discuss peculiarities of usage, or even to know if peculiarities exist; fourthly, that the way to establish the normal meaning is through prose, not verse; fifthly, that examination of the colour term in each of its contexts is likely to be illuminating in detail as well as in the whole; finally, that the results of exhaustive investigation will provide not only a clearer understanding of individual words and passages of literature, but also further insight into the manner in which the Greeks saw and interpreted their experience of colour-sensation.[50]

What follows is a detailed examination of γλαυκός, one of the more enigmatic colours, which have given both commentators and translators endless difficulty. One may sympathise. Even the ancient lexicographers and scholiasts made heavy weather of it.

CHAPTER TWO

ΓΛΑΥΚΟΣ: THE TEXTUAL EVIDENCE

Before any useful account of γλαυκός can be given, it is necessary to collect evidence of its usage into as comprehensive a gatherum as possible. One of the dangers of basing conclusions upon too few examples of a word's usage is that it may be given an alternative meaning as though that meaning were part of its 'normal' range, frequently found both in prose and in verse, whereas closer examination will show that nothing of the kind is true. The meaning turns out to be peculiar, and restricted to the work of one or two authors whose unusual view of the word therefore stands in need of comment. An example of this may be found in the provision of *green* as the alternative to *blue* as a principal meaning of γλαυκός. Such provision is without firm support, as the following body of evidence will show.

I have divided the presentation of this evidence into two parts. First comes the prose, then, the verse. Each part lists the occurrences of γλαυκός, these being given in a translation or summary of the context, and is arranged according to alphabetical sequence of the authors' names. This is done so that the reader who wishes to find out if there is anything particular to say about a given use of γλαυκός can look it up as quickly and conveniently as possible. Those who wish to discover the range of objects to which γλαυκός was applied, and which authors so used it, will find the appropriate word-list at the end of Chapter III.

PROSE

Adamantius

(i) Date: fourth-fifth centuries A.D.[1]

(ii) *Physiognomica*

1.6 One should never make friends with a man whose eyes are γλαυκούς, fixed, and dull,[2] or have him as a neighbour, or co-opt him on to a committee,[3] because he is untrustworthy and suffers from a persecution complex.

1.7 Eyes which are small, shifty, γλαυκοί, greedy, betoken men who are untrustworthy, unjust, do weird and wicked deeds, and live in a cloud of suspicion.

1.8a Whenever the eyes are γλαυκοί, they have small pupils. You will find their owners more servile and knavish, and fonder of money, than other people.[4]

1.8b Those people who have the weak, γλαυκά sort of eyes[5] are somewhat pale (ὑπολευκότεροι) and are the most feeble and cowardly of the people I have been talking about.

1.8c Χαροποί eyes are more speckled (αἰόλοι)[6] than γλαυκοί. For the moment, I shall speak about the speckles of γλαυκῶν.

1.11 [This is part of a passage, complicated and not very clear, in which Adamantius draws attention to differences between eyes which are χαροποί and those which are μέλανες. Χαροποί are differentiated from μέλανες by speckling which can show itself in many different colours. Adamantius then describes eyes which do not appear to be speckled. "They have," he says, "the dark rim (ἴτυν μέλαιναν) of the whole wheel outside, with a πυρράν rim outside that." In other words, the iris is surrounded by a dark band which is inside another coloured πυρράν. People with speckled eyes have a πυρράν band with white underneath it instead of black. In dark eyes there are two types:

(a) those in which the πυρράν band is not deeply coloured and which appear simply to be dark when seen from a distance (ὁπόσοις πόρρωθεν τὸ μέλαν μόνον ἐπιπρέπει) — these indicate inborn characteristics of wisdom, justice, etc;
(b) those in which the πυρράν band is highly coloured, "square", and has no specks; which shines inwardly as though lit by flames; which has near it ὠχραί specks mixed with the "fiery" bits or, alternatively, γλαυκαί specks; and with bloodshot or κυαναῖ bands running round the pupil — these are very bad indeed.]

1.13 Drunks and gluttons have prominent, bloodshot eyes. If they are γλαυκοί, it means that those men are unjust and stupid.

1.16 If there is sparkling in γλαυκοῖς and bloodshot eyes, it shows recklessness and an urge to destroy which borders on madness.

2.31 [The study of physiognomy is made difficult by racial admixture, he says. Complexion and hair colouring are not good

enough guides.] On the whole, those who live in Northern climes are tall, ξανθοί,[7] with soft λευκοί hair, γλαυκοί, snub-nosed, thick-lipped, well-built, with flabby flesh and pot-bellies; they are simple, passionate, have little discretion, quick tempers, and are slow at learning.

2.36a When γλαυκότης is the colour of the eyes, it means that the man is rather wild and fierce, because you will find that most wild animals have γλαυκά eyes.

2.36b The lightest shade of γλαυκῶν indicates a coward.[8]

Commentary

A.[1.11] All the colours mentioned here can be seen in the iris, which is capable of showing a remarkable variety of colour. The bloodshot speckling probably refers to dark brown flecks, as no red pigment is seen in the iris unless bleeding has occurred. It is true that blood vessels do appear on the surface of the iris in pathological states, but they can hardly be detected without magnification. Despite Adamantius's reference to illness (ἰσαθροῦντι — perhaps a case where the eye has been weakened as a result of some ailment), it is unlikely that the varieties of colour to which he refers in his description indicate specific unhealthy states because, unless there is gross intra-ocular disease, the iris does not change colour.

The bands which he describes so elaborately may refer to the collarette which is seen on the surface of the iris, running parallel to the pupillary margin, and dividing the iris into two zones.[9] The surface of the iris is very irregular, with numerous ridges and craters, some of which may appear to be square, and perhaps this accounts for the curious adjective "τετράγωνα" applied to the πυρράν band.

B. [2.31] Pseudo-Aristotle divided physiognomical method into three: expressional, zoological, and racial.[10] This last, in which the physiognomist predicts a man's character on the basis of his resemblance to a particular racial type whose characteristics are already known, provides the ground for Adamantius's remarks about Northerners.

Not that Adamantius was saying anything new. The combination of blond or reddish hair and light eyes was frequently noted in antiquity, most often in connection with Germans or Gauls.[11] Thracian gods, according to Xenophanes (fr. 14) were γλαυκούς and πυρρούς; those born under Mars are λευκερύθρους and γλαυκοφθάλμους,

this last, an attribute of warlike men.[12] Julius Caesar noted the keen brilliance of German eyes (*aciem oculorum*) and Ammianus, that the Gauls were terrible because of the wild and savage look in their eyes, (*luminumque torvitate terribiles*).[13] Germans were fierce; many were known to have light eyes; therefore γλαυκοί eyes indicate a wild or passionate nature. Such may be one of the steps in the development of ancient ideas about racial physiognomy.[14]

C. [2.36a] All wild animals do not have blue eyes, that is quite clear. So either the Greek does not mean what it says, or Adamantius is using an idiomatic phrase which we find peculiar.

Let us take the former, and more commonly accepted, view first. LSJM's definition of γλαυκός begins, "originally without any notion of colour, *gleaming* (cf. γλαύσσω, γλαυσός)." Now, eye-colour appears either in the iris or as light reflected from the fundus, which is in the back part of the eye, behind the crystalline lens,[15] and in animals (but not in man) this colour is often the result of tapetal reflex, light reflected by the tapetum, an irregular sector of choroid membrane at the base of the eye, which is responsible for the various colours seen in the fundus. It is this which gives some cats and dogs their green eyes.[16] The effect is one of brilliance or iridescence rather than colour, though this does not, indeed cannot, mean that the colour goes unnoticed. Brilliance and greenness are equally striking, for example, in the cat. It is unlikely, therefore, that LSJM can be right in assuming that γλαυκός began as an adjective of brilliance and acquired colour reference in later Greek. The opposite is more likely to be true, as the accumulation of evidence shows.[17]

Adamantius tells us (1.8c) that χαροποί eyes are more speckled than γλαυκοί. His word αἰόλοι is capable of meaning several things — *glittering, speckling* (as I have translated), or *weak.* It may also mean *quick-moving* and *shifty,* adjectives which redirect our attention from physical to psychological observation, and it may be argued that Adamantius, among others, took advantage of the link between light colour and brilliance to provide terms for a system of character assessment. The possible steps may be summarised thus.

Eyes are γλαυκοί because of inherent weakness. This can be found in babies, for example,[18] and in creatures which are dim-sighted.[19] Γλαυκοί eyes, like all light-coloured eyes, show most clearly the speckling of the irides.[20] They may be described, therefore, as αἰόλοι — *weak, shifty, cowardly;*[21] and as this weakness may refer both to

physical and to moral incapability, those with γλαυκοί eyes are feeble and cowardly by nature (2.36b).[22]

But because γλαυκοί eyes are all light-coloured, they appear bright as well, so that αἰόλος may also mean *flashing, glittering, unstable.* Hence, men who are emotionally upset or mentally unbalanced have γλαυκοί eyes (1.6, 1.7, 1.16). They may be fierce or angry (2.31),[23] just like wild animals. Now, we have just noticed that Germanic tribes were remarked for their γλαυκοί eyes and warlike disposition. Curiously enough, therefore, the same adjective may imply both cowardice and ferocity, thus implying too that the savage and unpredictable behaviour of ferocious animals and barbarians springs, not from true bravery, but from a need to disguise inner weakness by a show of reckless aggression.[24]

In this context, then, Adamantius has used γλαυκά as though it had much the same implication as αἰόλα. This is not to say that therefore γλαυκός 'means' *glittering.*[25] On the contrary — it retains its colour sense, but is immediately understood to have a different application for the purposes of this context. Examples from English can illustrate the point clearly. If I say that a man has green fingers, I mean he has luck in his attempts to grow plants. This luck may well turn me green with envy. If I am feeling blue, that is to say, depressed, I may be able to enliven myself by reading a blue (i.e. obscene) book. In each of these examples, the colour-word retains its colour sense, but is at once recognisable as a graphic means of conveying an entirely different sense. This, I suggest, is what γλαυκός is capable of doing in Greek.

Addendum

It seems to be agreed that there is some connection between the colour of the eye, of the skin, and of the hair, owing to the complex molecule *melanin,* whose exact function is still in dispute. "It is found," says Ashley Montagu, "that in high-sunlight areas where skins are deeply pigmented, the iris is too. In low-sunlight areas there is less pigment in the iris."[26] A map, showing "the distribution of skin colour throughout the world just before European exploration and colonisation so radically changed human distributions on the face of the earth," indicates that the lightest skins were found in Northern Europe — Scandinavia, Britain, France, Germany, and Northern Greece,[27] which suggests that in Classical

times, Greek and Roman generalisations about blue-eyed, blond-haired, pale-skinned Northerners may have been fairly accurate.

Analysis of eye colour in various parts of the modern world appears to show that people in the North (Dublin, Wales, North Russia) tend to have eyes of a lighter shade than those further South (Egypt, Bagdad), but the system of classification used in this analysis was arbitrarily divided into four grades, and not much more information can be gained from it than that I have just given.[28]

L. H. Dudley Buxton gathered together various figures about the Greeks. "Pittard remarks that brown eyes are in the majority, grey eyes frequently occur and blue are not rare. Ornstein out of a total of 1767 men found 170 with blond hair, 1561 with brown hair and 36 with black. Weisbach's figures are very different: out of 47 cases 20 had black hair, two fair hair and the remainder various shades of brown; two out of the 47 had blue eyes."[29] Amid this apparent confusion, he makes one point of special interest. "In Albania and Cyprus about one man in ten has blue eyes and even in dark Crete one man in twenty... The fact... that there appears to be such a difference in the distribution of blue eyes would possibly account for the blue-eyed tribes of classical times."[30]

Most of the generalisations made by Greek or Roman writers applied, as one might expect, to the North-West, to the tribes of Germany, Gaul, and Britain. It is possible, however, to detect references to similar tribes living in the North-East, Aryan peoples spread from Afghanistan, through Central Asia, as far as the Chinese borders. Pliny, for example, tells us that the 'Chinese' (*Seres*), "are of more than normal height and have reddish hair (*rutilis comis*) and light blue eyes (*caeruleis oculis*)," upon which G. F. Hudson commented: "This statement clearly does not refer to the real Chinese; it is to be taken rather as indicating tribesmen of the Pamirs, among whom a considerable blond element survives at the present day, (especially among the Galchas)."[31]

Pausanias seems to describe a similar non-Chinese tribe, for he tells us that the *Seres* are a mixture of Scythians and Indians; and Apollodorus of Artemita said that the Bactrians extended their empire as far North as China,[32] which leads one to presume that miscegenation such as Pausanias mentions would have taken place over a wide area.[33]

Aelian

(i) Of Praeneste. Date: c. 170 — 235 A.D.

(ii) *De Natura Animalium.*

1.16 The γλαῦκος is a model father among fishes.

12.43 [For fishing with a hook] one needs horse-hairs, λευκάς, μελαίνας, πυρράς and μεσαιπολίους in colour. If the hairs are dyed, men select only those coloured γλαυκάς[34] and ἁλιπορφύρους, for all the rest, they say, are useless.

17.45 It seems that those Aethiopian bulls called 'flesh-eaters' are the most savage of animals... They are πυρρότριχες, and their eyes are γλαυκοί even more so than those of lions.[35]

Dubia Lectio

2.14 If you come across [a chameleon] which seems to be μέλανι, it changes its appearance to χλωρότητα, as though it had changed its clothes, then again it looks different by putting on λευκότητα.

Commentary

A. [1.16] D'Arcy Thompson had commented fully on this fish which is unlikely to be identified.[36] As he says, the name has probably been applied to two quite different fishes, and one cannot be certain of assigning correctly to one particular fish the various characteristics described of either. For example, despite Aristotle's saying that the γλαῦκος is a pelagic fish,[37] one might argue that the adjective could apply to fresh-water fish which live in open water, though, admittedly, this would not be consistent with modern usege. On the other hand, the Cyranides collection describes γλαῦκος as θαλάσσιος,[38] which would normally distinguish the fish as a sea rather than a river creature. The adjective, however, can refer to colour,[39] and therefore 'sea-colour' would be as valid a translation as 'salt-water'. One may notice, too, the description of Γλαῦκος, the sea deity, by Agatharcides who specifically qualifies him by θαλάττιος,[40] which may be either a simple, banal epithet, or one which carries the same kind of reference to sea colour as κυανοχαίτης used of Poseidon, a possibility which has support in Nonnos's phrase for Glaukos — ὁμόχροος θαλάσσῃ, (*Dionysiaca* 14.84).

The fish's habit of taking its young into its mouth is particularly interesting. This phenomenon is very common among the

Cichlidae and especially among the genus *Tilapia,* the best known of which is the Mozambique Mouthbrooder (*Tilapia mossambica*). There are many fishes in this genus, and it is possible that one of the meanings of γλαῦκος is *Tilapia galilaea.* In this fish, the back is olive-brown, the flanks are silvery with a fine bluish sheen, and the underside silvery-white. As far as we know, it is also a mouthbrooder, and its colouring could have given rise to its name, if γλαῦκος is indeed to be related to γλαυκός and not to γλαῦξ, or to some idiomatic usage such as 'bright' or 'quick-moving'. But since hundreds of fish could be described as 'bright' or 'flashing', it seems more likely that colour was the characteristic which gave the fish its name.[41]

B. [2.14] The Mss. reading is λευκότητα, changed to γλαυκότητα by Johannes de Pauw early in the eighteenth century.[42] He may have been misled by the idea that γλαυκός could mean *green,* and therefore thought of it as a paler shade of χλωρός. One must also bear in mind Plutarch's dictum that the chameleon can make itself every colour except white,[43] a fallacy which, in one form or another, still persists today.

There is no need, however, to tamper with the text. According to the *Encyclopaedia Britannica* (14th ed.): "The normal colour of the common chameleon may be grey-green with innumerable small dark specks and with rows of pale brown patches on the sides of the body... exposure to hot sunlight causes the whole animal to darken until it may be uniformly dull black. High temperatures without direct sunlight usually produce greens and low temperatures dull greys."[44]

At the beginning of the century, R. L. Ditmaris recorded a series of experiments performed on the common chameleon, which illustrates very well the different effects of light and heat. Four creatures were used, and subjected to different physical conditions, in order that changes in their colour might be observed and recorded.

"Specimen A: Placed in the sunlight so that but one side of the lizard was exposed to the rays.

Specimen B: Placed in the sunlight at an angle to suffuse the reptile entirely with the rays.

Specimen C: Placed in a dark box. Temperature 75° F.

Specimen D: Placed in a dark box. Temperature 50° F.
After fifteen minutes these results were noted:

Specimen A: was a dark brown on the side that had been exposed to the sun; the shadowed side was a pale brown, mottled with green.

Specimen B: A uniform brown, deeper than the dark side of Specimen A.

Specimen C: When the cover of the box was drawn the lizard emerged in a brilliant coat of green.

Specimen D: crawled sluggishly from its cold quarters. Its colour was a uniform, slaty grey."[45]

Intensity of light or of temperature, then, as well as an instinct for self-preservation, cause the changes, not the chameleon's background, as is often presumed. Hence, the range of the animal's colour change is much less than legend has it.[46]

So what should be the colour in the text? Γλαυκότης may mean either *blue,* in which case Aelian is suggesting a colour found only upon the South African dwarf chameleon, or *greenish-grey,* the common chameleon's normal shade. But as the Mss. are at one in giving λευκότης, a word capable of encompassing the lighter shades of ashy-grey, and as de Pauw alone is responsible for the emendation, on grounds which are distinctly feeble, I suggest that the Mss. reading be retained and that, in consequence, Aelian does not provide evidence that γλαυκός can refer to green.

Agatharcides

(i) Of Knidos. Date: floruit 116 B.C.[47]

(ii) *De Mari Erythraeo.*

51 Most of [the Hylophagi] 'pass on', overcome by famine when glaucoma (γλαυκωμάτων) overtakes them at about the age of fifty.[48]

Commentary.

Antoninus Liberalis described Cerambos, turned into a *cerambyx,* the longicorn beetle which feeds on dead wood, its teeth crooked or curving like a hook (ἀγκύλος), its jaws never ceasing to chomp,[49] as ὑλοφάγος, 'wood-eater', that is to say, feeding upon shoots or leaves.[50] Hesiod's "βοὸς ὑλοφάγοιο" fed upon the shoots of young

trees;[51] Hippocrates, in a list of wild animals, contrasted carnivorous (ὠμοφάγα) with surculivorous (ὑλοφάγα).[52] The Hylophagi, then, lived upon tree-shoots and the leaves of any available plant.

Three questions pose themselves about the Hylophagi. Where were they to be found, who were they, and what is the effect of such a near-starvation diet upon health? Strabo tells us that along the Rivers Astaboras, Astapos, etc., lived the Rhizophagi, and near them the Spermophagi. Diodorus Siculus placed the Hylophagi in the same area.[53] Now, according to Strabo, the Astaboras river joined the Astapos river near Meroe and also flowed into the Nile. One of its branches emptied into the Arabian Gulf. Near Meroe was the confluence of the Astaboras, the Astapos, and the Astasobas rivers with the Nile.[54]

From this it is clear that the Hylophagi lived somewhere in Southern Butana, near the river now called the Atbara. It is impossible, however, to identify them with any surviving tribes: the movement of peoples in the area has been considerable, and our information about them is too scanty. Points of comparison can be made, of course. For example, the Rhizophagi who dwelt in the same general area remind one of the Ganza whose diet consists largely of edible roots, berries, and bamboo shoots.[55] But, for the most part, speculation will prove fruitless.[56]

If one does accept that Southern Butana is the most likely area in which Agatharcides's tribes were found, one will note certain features which agree with ancient descriptions. During the summer, the clay plains in the South are infested with flies; at other times of the year, the area affords poor grazing and insufficient crops for human beings.[57] Slightly further South, in the region of Gedaref, the country is thickly wooded. Barbour tells us that "the peasants are poor... They have few animals, though indeed the combination of climate and soil make it hard for any except goats and cattle to thrive, and the latter have to be sent away during the rains because of the flies."[58] Eating twigs and bark, therefore, may have been the Hylophagi's only means of survival for long periods of time.[59]

The γλαυκώματα in this case are likely to have been some form of cataract. Vitamin deficiency, particularly of the B-complex, can produce opacification of the cornea, and what Agatharcides has to say suggests also an hereditary element in the production of senile cataract.[60]

Alexander

(i) Of Myndos in Caria. Date: first half of the first century A.D.[61]

(ii) *Ornithiaca*

The kind of bird called γλαυκίον, because of the colour of its eyes, is a little smaller than the common duck.

Commentary

D'Arcy Thompson suggested that this is the Golden-eye (*Anas clangula*), an identification which rests on the ground that the bird's eye is pale yellow, like that of the γλαῦξ.[62] It is true that γλαυκίον is likely to be a diminutive of γλαῦξ, but is this sufficient guide to the colour of its eyes? Γλαυκίον is not a scientific term but a popular soubriquet, and the Greeks were quite capable of using a play on words between γλαῦξ, γλαυκίον, and γλαυκός the colour-term. They probably did so, after all, with γλαυκῶπις which means both *owl-eyed* and *blue-eyed,* even though owls do not have light blue eyes.[63]

Although I am doubtful about D'Arcy Thompson's identification of the bird as a form of duck — Alexander mentions the common duck only to provide a comparison of size between the two birds — the female Golden-eye presents the intriguing possibility of just such a jeu de mots, as her eyes may be either yellow or pale blue-green.[64] Verbal and imaginative connection between γλαῦξ, γλαυκίον, and γλαυκός is, therefore, possible, just as it is between γλαῦξ, γλαυκῶπις, and γλαυκός.[65]

Another possible candidate is the male Smew, (*Mergus albellus*). He has red irides which turn pearl-grey in old age, and may have reminded observers of γλαύκωμα in human beings.[66] An interesting comparison is *nīlākṣa,* a Sanskrit word for a type of goose; it consists of *nīlaḥ* (blue) and *ākṣa* (eye). Understanding of Sanskrit colour-terms seems to be almost as vague as that of Greek, but it is clear that *nīlaḥ,* while usually referring to dark blue, can also refer to a lighter shade, since it is used of such objects as indigo dye, sapphire, and the sky-blue neck of Shiva.[67] Krishna himself, described as *nīlaḥ,* is always depicted light or mid-blue, not dark.[68] Some bird, therefore, with light blue-grey irides such as Alexander described, may well have existed, but is not readily identifiable without much more detail than Alexander afforded.

Anatolius

(i) Perhaps Bishop of Laodicea. Date: about the third century A.D.[69]

(ii) *C.C.A.G.*

8^3.188[19] Those whose sign is the Moon are γλαυκά, flat-faced,[70] and long-lived.

Antiochus.

(i) Of Athens. Date: uncertain.

(ii) *C.C.A.G.*[71]

7.111[23] In these divisions of the Zodiac, the waning Moon creates pains and sufferings for those born at this time; namely, γλαυκώσεις, fluxes, dim-sightedness,[72] leprosy,[73] scrofulous swellings in the glands of the neck, fits, and paralysis.[74]

Commentary

In early Greek, γλαύκωσις and ὑπόχυμα appear to have been synonymous terms, both referring vaguely to cataract.[75] Only later was a distinction made between them. Γλαύκωμα was described as an affection of the lens itself and therefore an incurable condition; ὑπόχυμα as a perverted humour in front of the lens, and, in some cases, possibly curable.[76]

Nevertheless, no exact application of γλαύκωμα was made in antiquity, and the term seems to have been used without discrimination of almost any blindness in which the pupil changed colour. Glaucoma, with its 'green' or 'grey' cataracts may well have been included, although the term almost certainly did not indicate what we now call chronic glaucoma, since in that disease discolouration of the pupil is not particularly noticeable.

The colour meaning of γλαύκωμα is probably 'bluish', as Hirschberg demonstrated,[77] and one may point to the example of dermatogenous cataract in which the opacity forms a light blue plaque in the anterior cortical region.[78] Admittedly, this is a special case. Usually, cataracts cause the pupil to become grey or white though sometimes, in an early stage, they can give it a vaguely greenish hue. Galen, however, did say that "γλαύκωμα is a change

of the natural moistures to the colour γλαυκόν,"[79] and from the accumulated testimony from elsewhere one can hazard the opinion that Hirschberg was right. To give one example — Galen said that γλαύκωσις is the changing of the crystalline fluid to a λευκήν and water colour which interferes with the vision,[80] a description which leads one to suppose that a faint blue tinge is indicated. The Mediaeval oculist, Benvenutus Grassus of Jerusalem, distinguished between various kinds of 'curable cataract', one of which is white with a tendency to turn bluish, the other of a sky blue colour (*caerulea*);[81] and, as a matter of interest, one may note that, in the nineteenth century, the colloquial Egyptian name for glaucoma was 'the blue water'.[82]

Antoninus Liberalis

(i) Date: second century A.D.?

(ii) *Metamorphoses.*

15.2 [Agron] said he did not like the γλαυκήν goddess[83] because these same girls [his sisters] had μέλας eyes. Moreover, he absolutely hated the owl (γλαῦκα).

Antyllos

(i) Physician. Date: second century A.D.[84]

(ii) Apud Oribasium.

10.23.30 [A list of medicaments which may be applied to the eyes, especially during summer, including the plant γλαύκιον.][85]

Commentary

It is not easy to identify this plant with any assurance. Dioscorides tells us that, near Hierapolis of Syria, γλαύκιον referred to the plentiful, saffron-coloured juice of a plant which had leaves like those of the 'Horned Poppy' (ἔοικε δὲ αὐτῆς τὰ φύλλα τοῖς τῆς κερατίτιδος μήκωνος), but shinier (λιπαρώτερα) and low-growing.[86] Pliny adds that it grew in Syria and Parthia, had tightly-packed leaves like those of a poppy, but that these were smaller and dirtier looking. It had a foul smell and an astringent taste.[87]

Some commentators seem to think that this refers to the Greater Celandine (*Chelidonium maius*), though they do not advance reasons

for their choice,[88] but I think the name may have been given to the Horned Poppy (*Glaucium corniculatum*).[89] It is true that both it and the Greater Celandine grow in waste places, both have yellow sap, and are to be found in the Mediterranean area. Moreover, they could be confused in antiquity. Dioscorides describes the leaves of χελιδόνιον μέγα as ὑπόγλαυκα and an alternative version (RV ad locum) gives a number of other possible names for the plant, including γλαύκιος.[90]

Nevertheless, Renaissance commentators seem to have realised that there was a difference between the two. Andrés Laguna (1555) suggested that "el Glaucio legitimo de Dioscorides" was what the Arab botanists called *Memitha,* a plant with red flowers, indented leaves, a bitter taste, and an unpleasant smell. "Adulteran le algunos," he added, "con el çumo de la Celidonia mayor," thereby distinguishing between the two plants and their juices.[91] J. Goodyer (1655) also identified γλαύκιον as *Glaucium corniculatum.*[92]

Once again, we must bear in mind that is not a scientific term but the nâme popularly, perhaps even locally, given to the plant. Is it the yellow of most owls' eyes which prompted the nomenclature? The yellow flowers and sap of Greater Celandine could account for the idea. But is there not also the possibility of word-play between γλαῦξ, γλαύκιον, and γλαυκός, such as we find in the epithet γλαυκῶπις, or in the γλαυκίον of Alexander of Myndos?

The very fact that confusion between the plants was possible suggests that the name did not arise from their flowers, since one is yellow and the other red. Either the similar yellow juice of each reminded Greeks of the owl's yellow eye, or the distinctive leaves of the Horned Poppy evoked a play of γλαῦξ-γλαυκός, a play which seems to have occurred more than once. Moreover, a common gloss in late lexicographers was γλαύκιον τὸ χαλακάνθιν,[93] χαλκάνθη being the same as χαλκάνθη which referred to protosulphate of copper (blue copperas).[94] Perhaps this notion of colour led to an identification between the two words, and it is with due hesitation that I say I find the latter notion attractive.

The leaves of the Horned Poppy are a light blue-grey with green underlying it — 'glaucous', in fact, as Polunin calls them.[95] In addition, according to the *Encyclopaedia Britannica* (11th ed.), the Horned Poppy is "characterised by the waxy bloom of its leaves," and this must remind one of the shine to which Hierapolis of Syria referred. For such reasons, I am prepared to suggest that γλαύκιον

may have been the Horned Poppy, deriving its nickname from the distinctive colour and appearance of its leaves, while affording opportunity, because of its yellow sap, to indulge the owl / blue pun which Greek seems to have found enjoyable.[96]

Apsyrtos

(i) Of Bithynia. Date: third century A.D.

(ii) Apud *Hippiatrica Berolinensia.*

11.1 When γλαύκωμα occurs, lancing is useless because [the disease] is incurable. It is a result of so-called glazing of the eye (ὑάλωμα) rather like a λευκῇ pebble.

Commentary

This is not the same as *wall* or *china* eye. In these, the sight is unimpaired and the eye-ball clear, only the colour of the iris is blue instead of brown. Apsyrtos is referring to cataract or some other disease of the eye, as one must infer from his simile of a white stone. The passage illustrates the ambiguous use of γλαύκωμα which we have noted before (supra, 23-4). Any bluish tinge to the eye may indicate the beginnings of ophthalmia.[97]

Aristeas

(i) Date: mid third century B.C.

(ii) *Epistula ad Philocratem.*

316 "And of Theodectes also, the tragic poet, I have heard," [Demosthenes added], "that when he was about to introduce into one of his plays something recorded in the Bible, his eyes (τὰς ὄψεις) contracted glaucoma [ἀπεγλαυκώθη]."[98]

Commentary

Is this an eye disease which simply came and went, or was it psychosomatic? The Greek implies a cataract, but cataracts do not come and go. Once a patient is suffering from a cataract he can be cured only by surgery. Certain cataracts can be induced by modern drugs and then disappear when the drug is withdrawn, but that situation obviously does not obtain here. There are also organic

disorders, mainly haemological in nature, which can cause transient loss of vision, but the appearance of the eye in these is not affected.

Hysterical blindness is the most likely reason for sudden loss of vision as indeed, when the psychological cause of the affliction is removed, for its sudden restoration. But in such cases the appearance of the eye remains normal. In consequence, one must suggest that ἀπεγλαυκώθη is here used simply as a blanket-term for going blind and not, after all, as a reference to cataract.[99]

Aristotle

(i) Date: 383-322 B.C.

(ii) *Ethica Eudemia.*

8.2.3 (1247a. 12) Some men are γλαυκοί and others μελανόμματοι because a particular part of them is of a particular quality.[100]

De Generatione Animalium

5.1 (778a.18) [Aristotle is discussing secondary sex characteristics and intends to investigate the qualities by which the parts of animals differ, such as γλαυκότητα and μελανίαν of the eyes.]

5.1 (778a.33) [The eye exists to serve a purpose, but it is not γλαυκός for a similar reason unless that is a condition characteristic of the animal.][101]

5.1 (779a.26) The eyes of all infants are γλαυκότερα immediately after they are born.

5.1 (779a.32-3) [Animals have less variety in their eye-colour; for example, one class of animal will have χαροπόν or γλαυκόν eyes.][102]

5.1 (779a.35) The eyes of human beings show great variety of colour; some are γλαυκοί, some χαροποί, some μελανόφθαλμοι, others αἰγωποί.

5.1 (779b.4) The greatest diversity of colour among other animals is to be found in the horse; indeed, some horses have ἑτερόγλαυκοι eyes.

5.1 (779b.10, 12) The reason for infants' eyes being γλαυκότερα and for their having no other colour is that the parts of the newly-born are weaker, and γλαυκότης is a form of weakness.[103]

5.1 (779b.13-14) We must now determine the general question of why eyes differ, and the causes of some eyes' being γλαυκά, some χαροπά, and others αἰγωπά or μελανόμματα.

5.1 (779b.15, 18) [Quoting Empedocles, that γλαυκά eyes are fiery... therefore γλαυκά eyes are not keen-sighted during the daytime because of their deficiency in water.][104]

5.1 (779b.30) Eyes which contain a small amount [of water] are γλαυκά.

5.1 (779b.31) Clear (εὐδιόπτον) sea-water appears γλαυκόν, that which is less clear, murky (ὑδατῶδες), and that through which one cannot see clearly because of its depth, μέλαν and κυανοειδές.

5.1 (779b.35) We must presume the same cause is responsible for that fact that γλαυκά eyes are not keen during the day.

5.1 (780a.1) γλαυκά eyes are unduly set in motion by light and by visible objects because of their small amount of liquid.

5.1 (780a.15-18) γλαύκωμα tends to attack those with γλαυκοῖς eyes... γλαύκωμα is a kind of dryness of the eyes.

5.1 (780b.2-3) In children, it is because of the small volume of fluid [that the eyes] appear γλαυκά at first... Humans and horses in particular are ἑτερόγλαυκοι [for the same reason].

5.1 (780b.7-8) γλαυκότης of the eyes [is a weakness of fluid in the brain].

5.1 (780b.12) Whenever Nature cannot make the eyes correspond exactly... the result is ἑτερογλαύκους.

Historia Animalium

1.10 (492a.2) In some animals the [iris] really is μέλαν, in others very γλαυκόν, in some χαροπόν, in some αἰγωπόν.[105]

1.10 (492a.6) A few horses have γλαυκοί eyes.[106]

2.1 (501a.30) [a quotation from Ctesias on the γλαυκόν eye of a martichore.]

Physiognomica (pseudo-Aristotle)

6 (812b.4-5) Those whose eyes are γλαυκοί or λευκοί are cowardly... Those whose eyes are not γλαυκοί but χαροποί are of good courage.[107]

De Plantis (pseudo-Aristotle)

2.9 (828b.2) When coldness overcomes the plant, the heat enclosed inside it warms it up, and the appearance of coldness is

seen outside in its extremities. In this case, the leaves turn γλαυκά and do not fall, examples of this being the olive, the myrtle, and so on.

2.9 (828b.37) The colour which occurs in plants with a narrow passage will be σαπφειρίνῳ and will tend to λευκότητα because their parts are compressed. When there is a mixture of conditions, the colour is γλαυκόν.

2.9 (829a.26) Some trees change again in winter. Some become χλοερά, others γλαυκά; neither their leaves nor their fruit die.

2.9 (829a.35) [The colour of evergreens is caused by the relation of the tree to heat and moisture. When the cold returns and dryness is set to work and moisture controls the heat, the resulting colour is γλαυκόν.]

Problemata (pseudo-Aristotle).

10.11 (829a.1-5) Why are λευκοί men and horses usually γλαυκοί? Is it because, since there are three possible colours for the eyes, μέλανος, αἰγωποῦ, and γλαυκοῦ, the colour of the eye follows that of the body, and this is γλαυκότης?

14.14 (910a.13, 16, 23) Why do those who live in the South tend to have μελανόφθαλμοι? Are eyes γλαυκά because of the excess of internal heat?... So those who live in the North have γλαυκά eyes... Does the colour of the eye approximate to those of the rest of the body, so that because those who live in the North are λευκῶν, their eyes are γλαυκά?[108]

Commentary

A. [*G.A.* 5.1 (779a.26)]

Aristotle's word for 'eyes' in this passage is ὄμματα, a word sufficiently imprecise to make one ask if he was referring to the appearance of the eyes as a whole, or only to one of their parts, the iris or the sclera. To be frank, it is doubtful if he was thinking of the latter, because its normal colour is white, although one must qualify that by remarking that a baby's sclera often has a bluish tinge to it. This is because the sclera is very thin and the underlying black choroid imparts to it a bluish colouration. Such a tinge is not marked, however, — at least, not in such a way that would draw Aristotle's particular attention.

The iris, on the other hand, is the most striking feature of any eye. Structurally, it consists of two layers, a thick front layer known as the stroma, and a thin layer under that called the pigmented epithelium. In all eyes, the pigmented epithelium is black. The stroma has little or no pigment if the iris is blue, and a lot of pigment if the iris is brown. When a child is born, the stroma is almost without colour, and so light passes through it and is reflected back from the darkly pigmented layer underneath. This reflected light appears blue after diffraction in the anterior iris, in the same way as the sky appears blue because light reaching the Earth is widely diffracted in the atmosphere.[109]

Midwives, nurses, and doctors at various maternity hospitals, whose aid I have sought, are generally agreed that the shade of blue varies from pale to deep blue-grey. Those babies whose eyes are going to turn brown tend to have a slatier, more cloudy blue than those whose eyes will stay blue. In order to find out which blue was the more common, light or dark, I had inspection made of 96 babies in four different areas of England. The results were

Light blue:	13.
Mid-blue:	26.
Dark blue:	26.
Others:	4.[110]

This is interesting for two reasons. First, it shows that Aristotle's comparative is exact in that it allows for these variations in shade. But secondly, it suggests, either that Aristotle used γλαυκός to mean *dark blue* (which runs counter to its meaning elsewhere), or to mean *shining* without any colour-sense at all — a most unlikely eventuality since babies' eyes are remarkable rather more for their blueness than for their brilliance — or that he was aware of the differences in shade between various babies' eyes but saw more light blue than dark, and was thereby induced to describe them by γλαυκός instead of κυάνεος.[111] As my investigation seems to suggest that dark blue eyes are preponderant, one is led to ask, was Aristotle being careless, perhaps deriving a general conclusion from too few examples, or did he make his observations in a place where light-eyed babies were more common?

Obviously the latter proposal is the more likely. We have already had occasion to note that light blue eyes were regarded as

characteristic of Northern climes[112] so, unless one argues that Aristotle was writing from memories of his youthful observation among his own Macedonian relatives and neighbours, it is possible that these remarks derive from his later sojourn at Pella or Stageira, when he was tutor to the young Alexander between 340 and 335 B.C. This agrees with most modern dating of *De Generatione Animalium* and allows γλαυκός its usual interpretation.[113]

Γλαυκότερα, then, is likely to refer to the iris, although one must add that the *general* impression of blueness in babies' eyes is very striking. This is partly because babies do not often open their eyes wide and partly because, when they do, the single colour makes the eyes appear to be very large. It is perhaps this peculiarity which led Aristotle to use ὄμματα here, rather than the more specific κόραι.[114]

B. [*Ibid.* 5.1 (779b.4)]

The phenomenon of horses' having one eye a light blue-grey is not uncommon — I am told it can be seen in true-bred Welsh ponies, for example[115] — and presumably this is what Aristotle meant by 'diversity of colour' (πολύχρων). Julius Africanus tells us that such ἑτερόμματοι are remarkably brave and dispute with lions the title 'King of Beasts'.[116] No doubt this is why Alexander the Great was supposed to be ἑτεροφθάλμος, in accordance with ancient theory of symbolic portraiture,[117] and also why the same characteristic was attributed to his horse, Bucephalus.[118]

Pelagonius, the source of this information, also said that a good horse will carry its neck high, be proud and skittish, steady, straight and tall, and have γλαυκός (coloured) eyes. His neck will be full and thick but not short; his stomach firm and closely moulded round the rib-cage. His height should be just so; every vein, distinct and raised; his colouring, deep μέλανα. Such may have been the type Oppian of Syria had in mind when he recommended that during a hunt, γλαυκούς horses should be arrayed against bears.[119]

Courage, however, can turn into recklessness and when it does, the eye is not only γλαυκός but bloodshot. Thus Plato described the unruly, insolent horse of his famous chariot of the soul, (*Phaedrus* 253e),[120] an image of lust whose colour agrees with Plutarch's remark that those who are intemperate in their pleasures create an irremovable γλαύκινον stain on their soul.[121]

C. [*Ibid.* 5.1 (780a.1)]

There is no reason why a person with light eyes should have weaker sight in a sunny climate, unless he is an albino; but albinism is a pathological state, and not in question here. The vision is disturbed by abnormal dispersal of light only if the posterior, heavily pigmented layer of the iris is not actually pigmented to the full, as happens in albinos. In these cases, however, the iris is not just light-coloured but practically transparent and looks red. Aristotle's observation is, therefore, not accurate.[122]

D. [*H.A.* 2.12 (504a.27)]

"All birds," says Aristotle at this point, "blink with a skin which comes up over the eye from the corner." This reference to the nictitating membrane has led me to conjecture that there may be some connection, founded upon observation of Nature, between the various words which have γλαυκ - as their root. The membrane is used to protect the eye, perhaps against strong sunlight (as in the case of owls), perhaps against the action of water (as in the case of ducks). In diurnal birds it is usually transparent, but its effect is to give the eye a dull, greyish appearance.[123] A colour-photograph of a young Golden Eagle with the nictitating membrane draw shows the eye a distinct light blue which shades to dark blue near the pupil.[124] Allowing for the distortion of colour-photography and printing, one can observe that the membrane will cause the eye to seem dull, bluish-grey, or even diseased.

P. J. Bicknell has pointed out that Xenophanes's observation of the greyish-white appearance of the Moon during the day probably led him to conclude that the Moon itself was cloud.

"Sometimes it is seen against a clear blue sky amongst small high cumulus clouds. On these occasions the greyish white colour of the lunar disc is exactly the same as that of the surrounding clouds. The Moon further resembles clouds in that, under these conditions, its features exhibit exactly the same blue colour as the sky and thus appear to be gaps or holes in it and not features at all."[125]

This would explain why the Moon was sometimes called γλαυκά,[126] and perhaps why those born under the Moon were also γλαυκοί.[127]

But perhaps it can also explain why the owl was called γλαῦξ. This name may be derived from the colour-adjective, as the bird was

observed with its nictitating membrane drawn. The glazed, dull look of the eye may have reminded observers of the bluish-grey appearance of the Moon seen during daylight hours. If this is so, it may explain, in addition, why cataracts of the eye were called γλαυκῶσεις since, as we have already noted,[128] these can often give the eye a bluish-grey appearance. Moreover, word-play of this kind may also provide a clue to the link between γλαῦξ and that favourite adjective for Athene, γλαυκῶπις.[129]

E. [*De Plantis* 2.9 (828b.2)][130]

Little sense can be made of this, or of the succeeding passages. One's impression is that pseudo-Aristotle was explaining the plants by means of his philosophical pre-suppositions rather than building his system from careful observation of natural facts, although this does not mean to say that the passages are entirely nonsensical.

It is true that some plants do tend to go bluish-green under stress caused by water-shortage, for example, or cold, and a botanist would describe the resulting effect as glaucous.[131] A number of evergreens, such as the Dwarf Palm (*Chamaerops humilis*) or Cedar (*Cedrus atlantica*), may accumulate more waxish 'bloom' at higher altitudes, which suggests that 'wax' formation is increased as temperature declines.[132] It is just possible, too, that pseudo-Aristotle's 'narrow passages' could refer to restricted vascular supply which would lead to etiolation (λευκότητα). Σαπφειρίνῳ, however, entirely defeats expert interpretation.[133]

F. [*Problemata* 10.11 (892a.1-5)]

It is quite true to say that there is a relation between the colour of the eyes and that of the coat or skin,[134] but pseudo-Aristotle's 'three possible eye-colours' refer more to horses than to men, as this follows the observation of *Historia Animalium* 1.10 (492a.2). If γλαυκότης, referring to horses, means *steel-blue* or *grey* (as it will if the general meaning of γλαυκός = *light blue* is correct), the remark is not completely accurate since not all 'grey' horses necessarily have 'grey' eyes. Indeed, both questions seem to be trying to elevate a particular observation into a general rule.

Addenda

[*G.A.* 5.1 (779a.32-3)]

Aristotle precedes his general remarks about classes of animals and their appropriate eye-colours with two examples. 'Cattle have μελανόφθαλμοι', which is correct, as cattle almost always have dark brown eyes; and 'all sheep have ὑδαρές [eyes]'. This has puzzled translators and none has got it right. St.-Hilaire: "verdâtres, de la nuance de l'eau", (Paris 1887); Platt: "pale", (Oxford 1910); Peck: "pallid", with a note 'Lit. *watery*' (Loeb ed. 1942); Louis: "clairs comme de l'eau", (Budé ed. 1961).[135]

Sheep do not have pale, watery eyes, nor are they particularly subject to china or wall-eye. Their eyes are brown, of varying shades, but none especially pale, and it is most improbable that ancient breeds of sheep were much different from our own in this respect.[136]

Ὑδαρής was used principally to describe wine which had been diluted by water,[137] and one may compare with this Hippocrates's ὑδατωδής describing port-coloured urine.[138] Thus, ὑδαρές is probably meant to indicate a reddish-brown shade, lighter than μέλας but not as red as πυρρός.[139]

[*G.A.* 5.1 (779b.31)]

The clearest account of Aristotle's picture was given by A. Platt in his translation of *G.A.* Although he rendered ὑδατῶδες as 'watery', which hardly makes sense in the context,[140] his note explains exactly what Aristotle probably had in mind.

"On some beaches when the waves are breaking in gentle ripples, one sees the water a bluish or greenish grey on the sand or shingle, just beyond the break it may be more turbid and yellowish, which is what A. must mean by 'watery', and further out again it will be dark blue."[141]

Pseudo-Astrampsychus

(i) No date.

(ii) *Lithica Thalassica.*

2. (p. 191) Adamas, also called γλαῦκος, is found in Macedonia, near Mount Pangaeus. It is like a hailstone and saves one from the greatest flood and typhoon.

Commentary

The Manuscript reading, τὸ πάγιον ὄρος, does not make much sense and needs emendation. More probable versions are Πάγιον ὄρος, Mount Pagion, or Ἅγιον ὄρος, the Holy Mountain, that is, Athos. Of these two, Pagion (or Pangaeus, as I have translated) is the more likely since that mountain consists, at least in its higher reaches, of a crystalline white marble. I suspect that adamas's likeness to a hailstone, and the suggestion made later that it could be worn as an amulet against flood and typhoon, indicate that it could be picked up from the surface and did not have to be mined. The higher slopes of Mount Pangaeus may well have provided chips of stone which could be gathered easily by gem-workers.[142]

According to Caley and Richards, *adamas* usually referred to corundum, a crystallised mineral, often opaque, whose colour can vary from light blue to smoky grey, brown, and black.[143] A. A. Barb, however, argues that *adamas* is not a Greek but a Semitic word and meant first iron, then the diamond, then other precious stones with a diamond-like appearance.[144] Pseudo-Astrampsychus's simile of a hailstone and his inclusion of adamas under 'sea-stones' suggests that his was a blue or grey-white stone, similar in colour, perhaps, to the fish γλαῦκος which also seems to have derived its name from its colour.[145]

Astrologers

(i) Various writers of various, or no, dates.

(ii) *C.C.A.G.*

1.116[13] [Those born under Leo] become enthusiastic astronomers. Their eyes are ὑπογλαύκους rather than χαροπούς, but they are very good-looking.[146]

4.89[8] If [a thief] is born under Ares, he is... γλαυκόφθαλμος.[147]

5[1].212[8] When the Moon is in conjunction with Kronos, and in the ascendant.... she is harmful to the eyes, making them squint, myopic, or γλαυκούς.[148]

7.91[5-6] The thief is fond of laughter, violent, and a γλαυκός homosexual.[149]

7.91[8] The thief's eyes γλαυκίζων. He is μελάγχρους and a good-for-nothing.

7.93[37] The thief is handsome and γλαυκός.

8[3].157[18] [A recipe for turning γλαυκοφθάλμους μελανοφθάλμους][150]

Commentary

A. [1.116]

ὑπόγλαυκος. The prefix implies that the colour is lying under the surface and is therefore not quite seen in its full brilliance. The difference between ὑπο + colour and ἐν + colour may be described as the difference between dull + colour and colour + -ish. A few examples should make the point.

(a) ὑπογλαυκώσεις = incipient cataracts. The eye begins to acquire a dull, glazed appearance.[151]

(b) ὑπέρυθρος. Urine containing blood and bloody sediment. Flesh suffused with blood during exacerbation of bone-necrosis as haemorrhaging occurs.[152] In both cases, the red is seen indistinctly through another coloured medium.[153]

(c) ὑποκυάνεος. The head of the wood pigeon. The bird's rump and back are blue-grey and the head a darker shade of the same, the visual effect being of blue seen under a powdered haze of grey-white.[154] This effect is not deceptive, as certain of the bird's feathers disintegrate into a dust which dulls the surface of the surrounding plumage.[155]

(d) ὑποπόρφυρος. Aristotle described the halcyon's plumage as κυανοῦν, χλωρόν, and ὑποπόρφυρον.[156] If this bird is indeed the kingfisher, the first two colours will depend upon the angle at which sunlight strikes the feathers. The last may refer to a slightly pink shade underlying the blue.[157]

(e) ὕπωχρος. A sallow complexion, whether by nature or because of illness.[158] The yellow underlies the natural bronze or white-pink of healthy skin.

B. [7.91[8]].

γλαυκίζων. The verb ending is part of a group-variation which indicates likeness. Debrunner called it 'Imitativa'.[159] Examples easily illustrate the point.

(a) Demosthenes Ophthalmicus: in an eye affected by cataract, the pupil turns a kind of sea-colour (τῇ χρόᾳ θαλασσίζει).[160]

(b) Paxanus: when an olive ripens, it appears μελανίζον.[161]

(c) Hicesius: the deep-water sculpin is of two kinds. One is πυρρός, the other is inclined to be dark (μελανίζων).[162]

(d) Aristophanes: "Roast these things and ξανθίζετε them well."[163]

(e) Apollodorus of Athens: the wrasse tends to be πορφυρίζοντες in certain spots.[164]

The ending -ιζω, then, indicates a turning towards that colour which is present in the first part of the verb. So in this quotation from *C.C.A.G.* the thief's eyes have the appearance of, or look like, γλαυκός.

Pseudo-Athanasius

(i) No date.

(ii) *Liber de definitionibus.*

[A list of secondary personal properties or characteristics, ἰδιώματα ὑποτακτικά, which are not found in everyone]. λευκότης, μελανία, bigness, stuntedness, γλαυκότης, vigour, sluggishness.[165]

Basil

(i) Of Cappadocia. Date: obiit 379 A.D.

(ii) *Epistulae.*

38.5 [On the rainbow]. We cannot discern at all the intervening space between the γλαυκοῦ and the πυραυγές, the πυραυγοῦς and the πορφύρεον, the [πορφύρεον] and the ἠλέκτρινον, which both mixes together and separates the two different colours.[166]

Callimachus

(i) Of Cyrene. Date: c. 305-c. 240 B.C.

(ii) *De Avibus.*[167]

"There are two kinds of horned owls; the one utters notes, the other does not. Hence... the first are called σκῶπες, the other ἀείσκωπες. They are γλαυκοί."

Commentary

In his Loeb edition of Athenaeus, C.B. Gulick translated γλαυκοί as *glaring,* presumably faute de mieux since all owls may be said to have eyes which glare, on account of their size. In any case, γλαυκοί is a colour-term. Presumably Gulick was aware that no species of owl has light blue or grey eyes and was therefore at a loss to account for Callimachus's use of γλαυκός.[168]

One must presume that, as γλαυκοί does not refer to the birds' eyes, it must refer to their plumage, mentioned here because it is different from the usual tawny or dark brown of owls in general. Alexander of Myndos said that the Horned Owl was *lead-coloured* in appearance (μολυβδοφανεῖ τῷ χρώματι), with dull white spots (ὑπόλευκα στίγματα — i.e. somewhat grey) superimposed on it,[169] and this description agrees with one of the many variations of the Little Horned Owl (*Otus scops*)[170] which can appear in any shade from dark brown to grey. According to Grzimek, its 'ears' are noticeable only when the bird is frightened and then its eyes narrow to a slit — another reason for doubting Gulick's *glaring*.[171] Γλαυκοί, therefore, is here more likely to mean a shade of grey, and if Alexander of Myndos's reference to lead be applied to the same variety, one can see how a notion of a faint blue tinge could be appropriate.

Callistratus

(i) Date: third or fourth century A.D.

(ii) *Imagines*.

14.5 At the outer edges of the painting there rose from the depths an Amphitrite, a being of savage and terrifying aspect, who flashed from her eye a bright γλαυκόν.[172]

Commentary

"Painting," said Philostratus in the Preface to his *Imagines*, "is imitation by the use of colours." He regarded it as superior to sculpture because, "it permits the observer to recognise the look, now of a man who is mad, now of the man who is sorrowing or rejoicing," and he went on to point out that, whereas the plastic artist used not to bring out in his work the divers brilliances of the eye, this was the very thing a painter did. His son echoed his sentiments. A painter's mastery was shown, he said, in his knowledge of human nature. "He must be able to discern... what is revealed in the state of the cheeks and the expression of the eyes."[173]

Callistratus, then, was not only describing the physical appearance of a picture, but also the emotions of the characters in the painted tableau. Thus Amphitrite, a sea deity, has a fierce expression on her face, "gleaming a certain γλαυκόν brightness from the eyes." This ferocity was embodied in paint and line on a wooden

surface, so one has to ask what did Callistratus actually see as he looked at the painted eyes? We know from what he said earlier that the medium for colour in the painting was wax,[174] so Amphitrite's eye had a certain bloom which gleamed because of this. It seems reasonable to suggest, therefore, that γλαυκόν here is the colour and σέλας the shine, two words being necessary to describe both effects of the unusual medium.[175]

Cleitarchus

(i) Date: floruit c. 300 B.C.[176]

(ii) Apud Aelian: *N.A.*

17.23 The head feathers [of the Catreus, an Indian bird], are γλαυκωπά with saffron-coloured speckles sprinkled here and there.

Commentary

It appears that here we are dealing with two birds, not one. Attempts to identify the Catreus with the Manâl Pheasant (*Lopophus impeyanus*) are not altogether convincing because Cleitarchus's description fits neither the Manâl nor any other pheasant. Its size, and the colouring of its head feathers, perhaps come closer to the peacock than anything else.[177] Cleitarchus, indeed, said that it was about the same size as a peacock, and Strabo that it looked remarkably similar (15.1.69). But no one has yet described either the call of the pheasant or the cry of the peacock as melodious, and this is what both Cleitarchus and Nonnos said of the Catreus.[178] Hence, D'Arcy Thompson's deriving Catreus from the Sanskrit *katara,* which he said means 'melodious', does not strike one as a happy solution. More likely derivations, if we are dealing with a pheasant or peacock, would be *kātara = cowardly, timid;*[179] or *khāt = clearing the throat,* an unpleasant, rasping sound.

There is another bird, however, which is well known for its tuneful voice, the *Kastūr* or *Kastūra* which, like the Chir Pheasant (*Catreus wallichii*), is an inhabitant of the Himalayan valleys. Satya Churn Law described it thus: "Mingling its liquid voice with the laughing music of springs and cascades... the predominant note in its song is a very fine, clear and powerful whistle — plaintive but loud."[180] This concurs with Nonnos's description of the Catreus singing like a nightingale at dawn, a point recorded by Cleitarchus as well.[181]

I suggest, therefore, that two birds have been conflated, the 'pheasant' perhaps deriving its name from the distinctive sound of its own voice, or perhaps from a local name of the Himalayan Whistling Thrush.[182]

Cornutus

(i) Date: c. 20 — post 65 A.D.[183]

(ii) *Theologiae Graecae Compendium.*

9 [Of Zeus]. He is crowned with olive because it is evergreen, shiny, and has many uses — or because of the resemblance of its γλαυκότητος to the sky.

20a. [A series of arguments about Athene's attributes]. Because of this argument, she is credited with being both manly and grim-faced, as is manifested by her γλαυκότητος, for the very bravest of wild creatures such as leopards and lions, are γλαυκά. Their glittering eyes are hard to face.[184] Some people say [the epithet] was proposed because of the air's being γλαυκόν.

20b. Snakes and the owl (γλαύξ), on account of the resemblance of their eyes to this γλαυκώπιδι, furnish an example.[185] The snake's gaze is terrible. He is watchful, seems to go without sleep, and is not easy to capture.

20c. The olive is her gift because of its bloom and because it has a certain γλαυκωπόν.[186]

35. Lake Avernus perhaps more naturally derives its name from the air;[187] and indeed, the ancients used to call darkness and sometimes mist, 'air' — unless, indeed, they misapplied [the term] †γλαυκότητι† in this way to the air, as they did also to the plants called φασγάνια with which they crown Pluto.

Commentary

A. [9]

The colour of olive-leaves is a good example of what botanists call *glaucous,* that is to say the colour of a bloom which of itself is white or grey, partaking of the underlying colour of the plant or fruit, but often characterised as bluish white or bluish grey.[188] Hence Cornutus's later remark (20c) that the olive has a certain γλαυκωπόν, that is, 'a glaucous aspect'.

Any water-colourist will agree that, to capture the curious sheen and colour of an olive grove, it is necessary to use very light blue for the leaves.[189] Cornutus's remark that this shade is similar to that of the sky reinforces the recommendation.

B. [20a]

The best discussion of γλαυκῶπις Ἀθήνη in Homer is that of E. Watson-Williams.[190] I do not wish to repeat his arguments here, but his conclusions are that Homer's picture of Athene is a mixture of two different goddesses, the virgin goddess of war, and the civilisation goddess of handicrafts and husbandry. Homer never calls her γλαυκῶπις in her first, fierce aspect, so he does not think of the glaucous divinity as 'flashing' or 'terrible.'' For these notions he has other epithets. Nor is 'owl-eyed' an appropriate adjective in the contexts.[191]

Cornutus himself was not altogether sure why Athene was γλαυκή, and provided three objects of comparison — the eyes of leopards, lions, snakes, and owls; the air; and the olive. The blue of the sky is caused by scattered sunlight; aerial perspective is what makes distant objects look blue.[192] The Blue Mountains in Australia, for example, are so called from the bluish colour caused by light rays diffusing through droplets of oil dispersed into the air by the many types of indigenous eucalyptus trees.[193] Now, the ancient world had a number of theories, none of them very convincing, which tried to connect Athene with air or with the Moon. ''Minervam vel summum aethera vel etiam lunam esse dixerunt,'' said Augustine, hedging his bets, and one can find traces of both notions in much earlier writers.[194] These attempted identifications are without point unless Athene had something in common with both, and I suggest that the link may be the colour γλαυκός, since it is the only adjective which may be, and was, applied to all three. If one adds to this Cornutus's further statement that the olive belonged to Athene because of its γλαυκωπόν, a colour meaning for γλαυκῶπις becomes very much more likely.

As for the eyes of leopards and so forth, I have suggested already, (supra, 16), that when γλαυκός is applied to the eyes of wild animals it may be part of a metaphor derived from colour — the eyes are 'blue' with ferocity — and my discussion of γλαυκιόων infra will take this argument a stage further.

C. [35]

There is a problem in understanding the passage because if φασγάνιον is taken to mean Corn-flag, (*Gladiolus segetum*), as it usually is, the image does not make sense, since corn-flags have rosy-purple flowers, not blue.[195] Γλαυκότητι is an emendation, though most probably correct, as the Mss. read ἐγγύτητι, and Osmann's ταχύτητι or ὑγρότητι will not do. It is clear, however, that φασγάνια must refer to some other plant and, if we look at the diversity of other names given by Dioscorides,[196] we find that one is ξάνθιον, itself a somewhat vague term, but one covering a number of members of the Daisy family, the most likely for our purposes being Spiny cocklebar, (*Xanthium spinosum*), a flower with highly glaucous leaves which are slender and sword-like.[197]

One could, with Gyraldus, emend φασγανίων to σπαργανίων, in which case one is again faced with multiplicity of possible identifications, by no means an unusual problem, as Greek botanical terms were not scientifically organised. Among the candidates recorded by Dioscorides is ἔρινος, Annual Bellflower, (*Campanula erinus*), whose flowers may be pale blue, reddish, lilac, or white, and whose flower-lobes are lanceolate.[198]

Cornutus's point is that 'Avernus' is derived from the word for 'air'; darkness or mist were also called 'air'[199] because they could be tinged with γλαυκός colour. Similarly, γλαυκότης could be applied to the plants called φασγάνια, though in both cases the name is somewhat misapplied. I suspect Cornutus *wanted* to say that darkness was called air because air was sometimes dark, just as φασγάνια were so-called because they had the appearance of swords, but he has failed to be clear about this, and one must accept the possibility that he deliberately linked γλαυκότης with φασγάνια, and try to account for it.

Addendum on γλαυκιόων.

I can find only thirteen examples of this verb, ten from verse writers of whom only two — Homer and Hesiod — can be dated before the third century A.D. The prose writers are also from the third century.

1) Homer: *Iliad* 20.172. Achilles, about to fight Aeneas in single combat, is likened to a lion goaded to fury by being wounded from a spear-throw.

γλαυκιόων δ'ἰθὺς φέρεται μένει,

says Homer, usually translated as "with glaring eyes." Watson-Williams suggests that the lion charged *blindly*, his eyes dulled as though by cataract,[200] but I am assured by Dr. H. G. Vevers of the London Zoo that lions' eyes do not become glazed when they are angry, so this solution cannot be right.[201]

2) Hesiod: *Scutum* 430-1. This is an imitation of Homer. Heracles and Ares are about to do battle, and Heracles is compared with a lion ripping at the body of its prey, and pawing the earth in rage.

γλαυκιόων δ'ὄσσοις δεινὸν πλευράς τε και ὤμους
οὐρῇ μαστιόων ποσσὶν γλάφει.

3) Quintus of Smyrna: *Ilias* 7.488. As one might expect, his similes are strongly reminiscent of Homer. Odysseus, Diomede, and other Greek leaders are likened to lions pacing to and fro outside a farmstead, eager to attack the farm animals.

τοὶ δ'ὄμμασι γλαυκιόωντες.[202]

4) *Ibid.* 12.408. This is part of a description of how Laocöon was struck blind on account of his audacious advice that the Trojan horse be burned.

ὀτὲ δ'αὖτε δυσαλθέα γλαυκιόωντες.

His eyes were bright, suffused with much blood. There was frequent lacrimation, he had double vision, the γλαυκιόωντες eyes suffered a good deal of pain and finally turned white. All this is a very precise description of the course of glaucoma.[203]

5) Oppian of Syria: *Cynegetica* 3.70-1. This describes leopards,

6) γλαυκιόωσι κόραι βλεφάροις ὑπὸ μαρμαίρουσαι,
γλαυκιόωσιν ὁμοῦ τε καὶ ἔνδοθι φοινίσσονται.

P. Turnbull-Kemp has this to say about the expression of an angry leopard. "[The] greenish limpidity can be lost in a moment: intentness and intensity replacing the dreaming expression...When enraged or excited the head takes on an oddly reptilian mould. The light-tipped ears flatten against the head, and the amber or emerald eyes seem to shout their very fury."[204] This reptilian appearance, I am sure, accounts for the constant reference to big cats or snakes when examples are given of wild animals with γλαυκοί eyes, (for ex-

ample, Cornutus 20a, Ctesias fr. 57⁷, Pindar: *O.* 6.45, *P.* 4.249).[205]
7) Dionysius Periegetes: *Orbis Descriptio* 1121. The topaz, he says,

γλαυκιόωντα λίθον καθαροῖο τοπάζου,

is a stone which gleams with a distinctive colour. Now, although it is usually believed that the topaz is a yellow stone, actually its colours may be various. Divers shades of yellow and brown, blue, and pale green — even colourless stones — are not uncommon.[206] Dionysius has just mentioned the γλαυκήν beryl (1119) and so he may have chosen γλαυκιόωντα to echo the colour two lines later. Γλαυκήν probably refers to the blue variety of beryl, since there is no indication here that one should take the adjective in an unusual sense.[207] Thus, the idea of 'blue' will be carried over into the following verb.
8) Nonnos: *Dionysiaca* 14.83-4.

Γλαῦκος ἑοῖς μελέεσσιν ὁμόχροος ἔσκε θαλάσσῃ
γλαυκιόων.

Here there can be no doubt that the verb was chosen to echo *Glaukos* whose own name is derived from the colour of the sea, as is implied by the rest of the verse.
9) pseudo-Manetho: *Apotelesmatica* 5.250. The horned Moon and γλαυκιόωσα Venus are credited with causing scurvy, mange, leprosies, and eruptions of various kinds. Venus is the brightest natural object in the night sky, apart from the Moon, and shines with a whitish glare that may have reminded observers of a diseased eye.
10) Philostratus Junior: *Imagines* 2.2. The painting of Marsyas, the Phrygian, defeated in his contest with Apollo, shows him waiting to be flayed by a barbarian. This man is sharpening a knife and gazing at Marsyas with bloodlust in his eyes.

ἀναβλέπει δὲ ἐς τὸν Μαρσύαν γλαυκιῶν τὼ ὀφθαλμώ.

He is depicted as a wild beast and so reminds one, as he is probablymeant to do, of Homer's or Hesiod's lion.
11) *Ibid.* 8.3. The River Phasis, lying on a bed of rushes, his face bristling, with hair thick and standing out from his cheeks,

καὶ γλαυκιῶντες ὀφθαλμοί.

I suggest that once again the model for the picture was an angry lion — hence the use of this verb.

12) Heliodorus: *Aethiopica* 7.10.4. The hero is described thus. "He has a broad chest and shoulders. He carries his head upright and is of a commanding height over other men. His look is *glaukos* (γλαυκιῶν) and is both loving and spirited. His hair falls in long curls and his cheek sports a new ξανθῷ beard."

It is likely that Charicles is mean to look like an epic hero, Homer's Achilles, perhaps, who has been likened to a lion. The long curly hair, the distinctive eyes, remind one of Alexander the Great whose hair had a leonine appearance, and who certainly identified himself with Achilles. Surely the verb here must refer to the colour of the eyes, since their expression is otherwise described by ἐραστόν and γοργόν.[208]

13) Pollux: *Onomasticon* 2.4 (61). This included γλαυκιῶν in a list of eye colours.

It appears from this survey that γλαυκιόων should almost certainly be derived from the colour term γλαυκός, and that it seems to be connected with the angry or defiant look of a lion or leopard. On two occasions there is a possible connection with diseased eyes.

Now, both Carr and Turnbull-Kemp agree that pronouncedly light-eyed lions and leopards have a difficult and vicious temperament. Further, Turnbull-Kemp informs us that, "blindness in one eye is not especially rare in Leopards.... injuries received... may be responsible for the 'wall-eyed' examples which I have seen... It is when one encounters a wall-eyed Leopard that the extreme beauty of the Leopard's eyes is fully appreciated."[209] Achilles was described by Homer as blond-haired,[210] a condition which is often to be found in conjunction with light, indeed blue, eyes and we know that lions were hunted in Greece both in Early and in Classical times.[211] Is it possible, then, that the blond, bearded Achilles, his blue eyes flashing with anger, reminded 'Homer' of an enraged lion, and that the startling metaphor γλαυκιόων, coined for this occasion, found its way, like so much Homeric diction, into the works of later, rather self-consciously archaising, Greek writers?[212]

Ctesias

(i) Of Cnidos. Date: late fifth century B.C.

(ii) *Indica.*

Fr.67 [The eyes of the Indian martichore are γλαυκούς].[213]

Commentary

Pausanias offered the most convincing explanation of this animal. "I believe it is the tiger," he said. "That it has three rows of teeth on each jaw and prickles on the tip of its tail, and that it defends itself with these prickles at close quarters, and hurls them at its foes like the arrows of an archer, from a distance: all this seems to me to be a false report which circulates amongst the Indians owing to their excessive fear of the beast. They were deceived also in respect of its colour; for when they saw the tiger in the sunlight it seemed to them to be red all over (ἐρυθρός τ'ἐδόκει καὶ ὁμόχροος), either by reason of its speed or, if it were not running, on account of its constantly turning about, especially if they did not see the beast near," (9.21.4).

This suggestion appears to be supported by etymology. The word is derived from the Persian *mardkhora* which means 'man-slayer',[214] but if the animal was indeed a tiger, γλαυκός can be correct neither as an accurate colour term nor as a reference to 'owlish eyes'. In consequence, I think that this is either a mistake or a description based on the metaphor γλαυκιόων.[215]

Cyranides

(i) Not an author, but a collection. Date: first or second century A.D.

(ii) 1.3.5 (p. 13) γλαῦκος, the famous sea-colour fish.[216]

2.10.19 (p. 64) Make an eye-paint, like thick eye-salve, from both eyes of a γλαυκοῦ dog,[217] talc,[218] and obsidian. Paint your eyes with it and you will be able to see in the dark.

4.3.12 (p. 106) The gall [of the γλαῦκος fish] μελαίνει the *glaukoi* eyes of children (γλαυκοφθαλμίαν) and cures λευκώματα. [219]

Demosthenes Ophthalmicus

(i) Date: first century A.D.[220]

(ii) Apud Aetium: *Libri Medicinales*.

7.52 There are said to be two kinds of γλαύκωσις. Γλαύκωσις in the strict sense of the word is a change towards γλαυκόν because of dryness and coagulation of the crystalline fluid.[221] The other kind of γλαυκώσεως comes from an antecedent cataract (ὑποχύματος), when

the fluid in the area of the pupil is damaged and become extremely dry. It is this type which is incurable.

7.53 [On cataract]. The pupil appears clear to the somewhat careless examiner, but on occasion it resembles sea-water in colour. As the condition worsens, so the symptoms increase. In the end, the man is unable to see because the colour of the pupil turns λευκότεραν and is completely obscured. There are more shades of colour than this. Some cataracts resemble air (ἀερίζει),[222] others glass (ὑαλίζει), others are ἔκλευκα, yet others turn κυανώτερον. Those which ἀπογλαυκοῦται are incurable.

Commentary

The first passage neatly summarises the contemporary view, though it does not mean very much to a modern ophthalmologist. The second, however, is a fairly accurate description of cataract, although there seems to be no particular reason for γλαυκαί cataracts' being incurable.[223]

Diodorus Siculus

(i) Of Agyrium. Date: floruit at the end of the first century B.C. and the beginning of the first A.D.

(ii) *Bibliotheca Historica.*

1.12.8 [Athene is translated into Egyptian by the word for air]. They say she is also called Γλαυκῶπιν, not because she has γλαυκούς eyes, as some Greeks have maintained... but because the air is ἔγγλαυκον.[224]

3.24.4 Most of the [Hylophagi] die from being exhausted by hunger, when their eyes are afflicted by *glaucoma* (ἀπογλαυκωθέντων) and the body is deprived of the necessary use of this sense-organ.[225]

Commentary

1.12.8 Diodorus tells us that 'Athene' was translated into Egyptian by the word for air, though the Egyptian air-god was *Shu.* There are no Egyptian words for air, breeze, and the like, which could, by any stretch of etymology, be taken as the source of the name Athene. There is a word *āthen,* but Wallis-Budge could assign it no meaning in his *Hieroglyphic Dictionary,* (London 1920). Besides,

Athene is usually identified with the Egyptian deity Neith, the maiden.[226] So it looks as though Diodorus was saying that it was Greeks rather than Egyptians who thought Athene could be identified with air.[227]

'Εν before an adjective is the equivalent of our English suffix -ish. It indicates that the colour is not static, not achieved, but in action and in process of being achieved. Thus, Poseidonius described the sun, setting or rising, seen through a dry, thin cloud, as ἐνερευθής.[228] The disk is obscured and its colour not clear. When dyer's buckthorn is cooked, the scum which rises to the top is ἐνερευθής.[229] Men's faces are flushed, that is, begin to go red, with emotion — whether shyness or anger.[230] An ἐγχρύση στολή is one, not of gold tissue, but woven with gold thread which imparts a golden sheen or glimmer to the basic material.[231] Similarly, the topaz is not yellow but yellowish.[232] Pseudo-Aristotle said that skin and hair colouring are similar, so men with λευκόπυρρα hair, for example, are not redheads but ἔμπυρροι.[233] Ἔγγλαυκος, therefore, indicates that the air has a γλαυκός tinge to it[234]

Dioscorides

(i) Of Anazarbae in Cilicia. Date: floruit in the first century A.D.

(ii) *De Materia Medica.*

1.54.2 Oil of saffron, olive oil, wax, marrow — all are good for those suffering from *glaucoma* (ἀπογλαυκώσεις).[235]

1.125.3 Some people say that if you reduce to ashes the shell [of the Pontic nut], mix them with olive oil, and rub this compress into the forehead, it μελαίνει the pupils and hair of γλαυκοφθάλμων children.[236]

2.154.1 [Instructions for a mustard preparation.] Do not choose it very dry and brittle, but when it is ripe. When crushed, the inside will be χλωρόν, juicy (as it were), and γλαυκόν.[237]

2.180.1 The stem of the *Greater Celandine* is a cubit long, (sometimes more), thin, with offshoots full of leaves which resemble those of the *Batrachion.* But they are rather delicate and ὑπόγλαυκα in colour.

4.60.1 [*Hierobotane*]. Its shoots grow a span's length or even more. They are angular and jointed. Round them, at intervals, are the leaves which are like oak-leaves except that they are thinner and

not cut so much in the form of a circle. They are ὑπόγλαυκα. The roots are rather long and thin.

Commentary

A. [2.154.1]

Laguna's comment on this was, "un çumo de color verde y blanco,"[238] with which one may compare Hesychius: γλαυκός = λευκός. Matthiolo translated it as, "che rompendosi sia verde di dentro et che bagni a modo di certo succhio, di color caeruleo," (1544), and, in Latin, "interne virescat et veluti quodam succo madeat, caesium colore," (1558). If one does crush the ripe stem, the milky juice lends a shining, silvery tinge to the pale green. This may be the effect Dioscorides was describing.

B. [2.180.1]

The Arabic version of *De Materia Medica*[239] differs greatly from the Greek, but this section happens to have received very close translation, ὑπόγλαυκα being rendered by *ilā al-zarqa,* "towards the blue." Matthiolo: "di colore che tende al ceruleo," (1544); "colore caesiis," (1558). Goodyer: "somewhat of a cerulean colour"; Laguna: "un verde claro." Polunin says that the leaves are a bright green.[240] The trouble with these descriptions is that conditions make a great deal of difference to the appearance of plants, especially to the look of their leaves. See, for example, Aristotle on plants turning blue in cold weather (supra 28-9) and my comments (33). Dioscorides's description of the leaves' being a dull γλαυκός colour better fits the Horned Poppy (*Glaucium flavum*) than *Chelidonium maius.*[241] On ὑπόγλαυκος, see supra 36.

C. [4.60.1]

This plant is probably Vervain (*Verbena officinalis*). Pliny tells us that its Latin name was *verbenaca.* His description — 'oaklike' leaves, grey-blue flowers, long slender roots, growth in flat moist places — fits quite well.[242] A botanist informed me that he thought the leaves were a dull green with a slight bluish tinge to them.[243]

Dorotheus

(i) Of Sidon. Date: floruit c. 25 — c. 75 A.D.

(ii) *Carmen Astrologicum.*

Fr. 5.35 (p. 415)[244] [Thieves born under Leo are]γλαυκούς,[245] πυρρούς, and handsome.[246]
[Thieves born under Scorpio] have their hair bound up and are ὑπογλαύκους,[247] with eyes of medium size.

Epiphanius

(i) Date: c. 315-402 A.D.[248]

(ii) *De Gemmis.*

6 [One kind of *iaspis*] is γλαυκοτέρα than the sea.

11 The beryl γλαυκίζων, the colour of the sea[249]or of a rather watery *hyacinthos*.

Commentary

A. [6]

It is fairly clear that Epiphanius was not describing what we mean by jasper.[250] The term must have covered what is now regarded as a number of separate gem materials including many varieties of quartz, (prase, blue chalcedony, cornelian, rose quartz, rock crystal, etc.), and quite possibly malachite, azurite, and even jade, though this is not likely to have been common in the Mediterranean area.[251] Epiphanius did say that the shade was 'deeper than flower or dye', and one is reminded that γλαυκός dye was made from woad and was therefore blue. So I think the *iaspis* referred to here could well have been blue chalcedony or azurite.

B. [11]

The aquamarine may be either bluish-green or greenish-blue. The hyacinthos described by Pliny was probably blue sapphire,[252] the name being related to the cultivated hyacinth flower, a native of Greece and Asia Minor, which has rather large blue flowers.[253] I am inclined, therefore, to think of Epiphanius's stone as more blue than green.

Galen

(i) Date: c. 129-199 A.D.

(ii) *Ars Medica.*

9 = K1.330 Eyes which shine with pure, but not very much, fluid, become γλαυκοί because of the abundance of bright light. Μέλανες eyes are the opposite...Therefore the eye is γλαυκός either because of its size, or the brilliance of its crystalline lens, or its prominence, or smallness and purity of the thin watery fluid which is in front of the pupil.[254] If all these conditions obtain at once, the result is γλαυκότατος. If some are present and others not, there is more, or less, [of the colour γλαυκότης].[255]

De temperamentis

2.6 = K1.638 We have to decide whether eyes are γλαυκούς because fluid is predominant, or heat, or both...[256]

De usu partium corporis humani.

10.6 = K3.786 Damage to the eyes occurs when too much fluid is drawn off during couching for cataracts, and the symptom called by doctors γλαύκωσις is a dryness and disproportionate coagulation of crystalline fluid.[257]

De semine

2.1 = K4.606 [He asks if it is possible to remodel parts of the body and to create a γλαυκόν or μέλανα eye.]

De atra bile

2. = K5.110 One bile is called 'woadish' because of the γλαυκῆς colour of woad.

De compositione medicamentorum secundum locos

4.8 = K12.740 [A recipe to turn the pupils of those with γλαυκοφθάλμους dark (μελαίναι)].[258]

Ibid

4.8 = K12.746 [γλαυκιδανόν — an eye salve].

De remediis parabilibus

2.4.13 = K14.414 Henbane is to be used by women with γλαυκοφθάλμους to turn them μέλανας.[259]

Ibid

2.7.5. = K14.425 Crush γλαύκουρις in equal parts of honey and water, and then use it as a gargle.[260]

Medicus, (pseudo-Galen)

11 = K14.712 Hippocrates says the eye has two membranes; later writers say three or four. The external 'coat' is known as the cornea. Λευκός in respect of the rest of its parts and thin in the neighbourhood of the iris, it lets through the underlying colour, according to whether it is μέλας or γλαυκότερος or χαροπός.[261]

In Hippocratis Epidemias 3, Commentarius

3.70 = K17¹.726 It was better to say γλαυκούς rather than χαροπούς because [χαροποί] are thought to come from a cold mixture [of elements], [γλαυκοί] of moist; others, of equal parts of cold and moist — all of which does not contradict my present argument. Let us now compare with these newly-born children, Scythians, Celts, and Germans who, it is generally agreed, have more moisture in their constitution. What is not yet admitted is that they are colder too.[262] Consequently, bearing these things in mind, I thought it worth while to investigate the colour of χαροπῶν eyes.

Ibid

3.70 = K17¹.727 Therefore, surely Hippocrates wrote χαροπόν instead of γλαυκοῦ?

In Hippocrates de medici officina, Commentarius

1.4 = K18².664 [Writing of the differences between men]. One is γλαυκός, another χαροπός, or μέλας, or whatever his eyes may be. These are supposed to be alike. Yet it is more usual to say that γλαυκός is like γλαυκῷ, χαροπός like χαροπῷ, etc.

Ibid

2.2 = K18².728 A flat-nosed man is not called thick or thin, or λευκός or μέλας, but γλαυκός or χαροπός or hunchbacked.

Definitiones medicae, (pseudo-Galen)[263]

131 = K19.385 Health is what is in accordance with Nature, disease what is contrary to it. But what Nature does is neither in accordance nor at variance at this time as, for example, being delicate and dry, or broad and fatty, or aquiline, or γλαυκός or flat-nosed, etc.

Ibid.

344 = K19.435 Γλαύκωμα is a change of the natural moistures to the colour γλαυκόν.[264]

Ibid

363 = K19.438 A cataract is a coagulation of the watery fluid which prevents one to a greater or lesser degree from being able to see. A cataract differs from γλαυκώματος in that the cataract is a coagulation of the watery fluid, whereas γλαύκωμα is a change of the natural fluids to the [colour] γλαυκόν and with γλαυκώματος one cannot see at all, whereas with a cataract one can see a little.[265]

Commentary

A. [*De atra bile* 2]

See infra my comments on *P. Holm.* There is no liquid normally found in the body whose colour could be described as any shade of blue. Normal bile varies from straw-yellow to brownish, and venous blood between dark crimson and blackish, except in cyanosis when it is of a dark blue colour. Perhaps if there were some gangrenous infection in the chest or stomach the patient might cough up a greyish pus. In chronic bronchitis the sputum is often grey, and someone exposed to dust during his work may also produce a greyish sputum.[266] The most likely explanation, however, is that Galen was thinking of blue matter vomited up by a patient suffering from copper poisoning after having eaten food cooked in a copper vessel.[267]

There is a curious puzzle in the Latin version by J. Guinterius (Paris 1528). He wrote, "Alia quaedam ἰσατωδής a lutiae colore quo

infectoers utuntur." *Lutiae* presumably comes from *lutea,* a form of *lutum* meaning weld (*Reseda luteola*), a plant with yellow flowers, much used in ancient times for dyeing. As woad (*Isatis tinctoria*) also has yellow flowers, I can only think that Guinterius mistook his plant.

B. [*De comp. med. sec. locos* 4.8]

The recipe contains pomegranate-juice, henbane, and wine and the effect of a distillation of henbane, which contains the drug atropine, would be a dilation of the pupils sufficient to last for perhaps ten or twelve days. Oddly enough, atropine does not work as well in eyes which have dark irides, so its use especially in light-coloured eyes is understandable.[268] J. Cornarius, a sixteenth century translator, aware perhaps of the action of belladonna, thought that σίδιον meant nightshade (*solanum*), [Leiden 1549, 361].

Gregory of Nyssa

(i) Date: c. 330-395 A.D.

(ii) *De anima et resurrectione.*[269]

Just as in our present life, if I remember someone — let us assume for the purposes of discussion that he is growing bald, has prominent lips, a rather flat nose, is λευκόχρους, has *glaukoi* eyes (γλαύκομματος), hair which is πολιά, and has a wrinkled body....

Heliodorus

(i) Date: c. 220-250 A.D.[270]

(ii) *Aethiopica.*

7.10.4 "I know the young man," said the old woman. "He has a broad chest and shoulders...and his look is *glaukos* (γλαυκιῶν),[271] both loving (ἐραστόν) and spirited (γοργόν)...His cheeks sport a new ξανθῷ beard."

Hephaestion

(i) Of Thebes. Date: fourth—fifth centuries A.D.

(ii) *Apotelesmatica.*

2.2.32 Those born under Leo are γλαυκούς, πυρρότριχας, strong, hunch-backed, large on top, and ugly.[272]

2.2.35 Those born under Scorpio are small-eyed, ὠχρούς, and have little ears ... they have γλαυκούς eyes.[273]

2.2.41 Those born under Ares are ξανθούς, have γλαυκούς[274] eyes and long, straight hair. They are spirited[275] and have small ears.

2.12.7 [Quotation from Ptolemy q.v.]

3.45.9 [Quotation from Dorotheus of Sidon q.v.]

Herodotus

(i) Date: fifth century B.C.

(ii) *Historiae.*

4.108 The Budini are a great and numerous people. They are very γλαυκόν and πυρρόν.

Commentary

The usual interpretation of both colour terms requires γλαυκόν to refer to the eyes and πυρρόν to the hair. Despite various suggestions that they do not and that the Budini painted their πυρρόν bodies with γλαυκόν paint, the expected interpretation should be allowed to stand.[276] Plotinus summed up regular usage in his remark. "One says that a man is in pain because his finger hurts, just as one says that he is γλαυκός because his eyes are a γλαυκόν [colour]."[277] It is worth comparing with Herodotus's picture of the Budini the description of Tityrus, a character from a novel by 'Longus' — πυρρὸν, γλαυκόν and λευκόν.[278] Since λευκόν must refer to his complexion, (unless we are to imagine him red-skinned and white haired at the tender age which 'Longus' gave him), πυρρόν refers to his hair and γλαυκόν to his eyes. As with Tityrus, so with the Budini.[279]

Himerius

(i) Mainly of Athens. Date: c. 310-c. 390 A.D.

(ii) *Declamationes.*

12 (13).2 I shall paint my picture by means of speech, for eloquence too has its own colours (φάρμακα) with which a faithful rendering (πρὸς μιμήσιν) can be made. In this picture there is a ship and a sea — the Aegean, no less — .... But the scene has not been depicted as savage or wild or frightening with waves, whereby the

Aegean overturns those who travel upon her, reared up to the clouds. No, all her waves were quiet. All the water near the shores themselves ἐπόρφυρε[280] as the wave changed its colour slightly into a brilliant γλαυκόν.[281]

12 (13).21 [A group of Nereids on the shores of the Ionian Sea]. Their eyes are γλαυκαί,[282] their hair is sea-lettuce,[283] and the ends of their hair still drip λευκόν foam from the sea.

12 (13).37 Let γλαυκοί stars[284] arise and shine out with a brilliant light upon your ascension.

47.5 The earth is crowned and decorated not with anemones, violets, or any other flowers, but with the gifts of Bacchus and the γλαυκῷ wreath of *Idaea.*

62 (16).2 Poseidon, ruler of the sea, surrounds you with γλαυκοῖς waves.[285]

Commentary

[47.5] Wernsdorf's note on τῆς ἰδέας begins, "stulta lectio, in qua tamen codices conspirant." Despite this observation, which should have served as a warning, he sought to emend ἰδέας to Δηοῦς, a version adopted by Colonna without any further reference, and then to explain γλαυκός as *flavus* on the grounds that the plant must be corn. The rest of his note seeks to support this.

It is quite clear, however, that γλαυκός cannot mean *yellow*. No other usage anywhere else in either prose or verse will agree, and one is impelled almost immediately to reject Wernsdorf's emendation. A much more likely reading is ἰδαίας about whose exact identification there cannot be full agreement because the term refers to so many different plants. But at least the Mss. concerted lapse into ἰδέας is more understandable. *Idaea,* as one may discover from J. André,[286] is capable of meaning *Inula, Laurus alexandrina, Ruscus hypoglossum,* and *Dictamnus,* a varied and wide-ranging selection even for Greek botanical nomenclature.

One, however, does strike me as more likely to have been Himerius's plant than the others — the Mezereon Laurel (*Daphne mezereum*). According to Pliny, "there is also the Alexandrine laurel, which some call Idaean, others hypoglottion, others Danae, others carpophyllon, others hypelates. This laurel spreads out branches nine inches long from its root, and is useful for making wreaths. The leaf is more pointed than that of the myrtle, softer,

lighter in colour (*candidiore*), and larger. The seed, which is between the leaves, is red. It grows most abundantly on Mount Ida... and is found only in mountainous areas."[287]

Here, more or less, is the Mezereon laurel, which grows on hills, has scarlet fruit, whose leaves are bright green and somewhat glaucous underneath, and whose stem is *greyish.*[288] I suggest, then, that in this we have not only the plant Himerius had in mind but also another regular and accurate botanical use of the term γλαυκός.

Hippiatrica Cantabrigiensia

(i) Date: uncertain.

(ii)

8.2 Those eyes which are naturally full of blood, and those which are γλαυκοί, find the astringency of eye-salves insupportable.[289]

Hippocratic Corpus

(i) Date: various dates can be assigned to the different works of the Corpus, the genuine works being mainly from the fifth century B.C.

(ii) *De aeribus, aquis, locis.*

14 = Littré 2.60 Γλαυκοί parents will produce *glaukoi* (γλαυκῶν) children.[290]

Epidemiae

2.6.1 = Littré 5.132 [Physiognomica]. Someone with a small head will neither stammer nor go bald, unless he is γλαυκός.

Ibid.

4.30 = Littré 5.174 [A case history of an old woman suffering from dropsy]. Her eyes had become *glaukoi* (ἐγλαυκώθη).

Prorrheticon

2.20 = Littré 9.48 Pupils which have become γλαυκούμεναι or ἀργυροειδέες or κυάνεαι are useless.

Commentary

A. [*Epidemiae* 4.30]

There is probably no connection between the old woman's dropsy and her eye disease. Nowadays, of course, dropsy is controlled by drugs, but even so it is doubtful whether the eye would become infected. It sounds as though she was suffering from some specific ocular condition, the most likely being a cloudiness of the cornea resulting, perhaps, from keratitis or glaucoma. But as we have no more information it is fruitless to speculate further.

B. [*Prorrheticon* 2.20]

Pupils which have turned γλαυκαί or ἀργυροειδέες are probably affected by a cataract due to opacities in the lens lying just behind the pupil. Such eyes would certainly be useless if the cataract reached an advanced state. Κυάνεαι pupils are puzzling, since they do not appear to exist. If Hippocrates here meant the iris, changes in its colour can be explained. They may be caused by many different conditions—glaucoma, for example, or uveitis. But it would be odd if κόρη suddenly changed its meaning within a single sentence, and I think Hippocrates must have been referring to some specific but very rare condition.

Hippolytus

(i) Date: obiit 235 A.D.

(ii) *Refutatio omnium haeresium.*

4.15 [Those whose sign is Ares are born with πυρρᾷ hair...and γλαυκοῖς eyes].

4.18 [Those whose sign is Cancer are born with κυανέῃ hair, a ὑποπύρρῳ complexion...and ὑπογλαύκοις eyes].

4.19 [Those whose sign is Leo are born with ὑποπύρρῳ hair...πυρροί complexions, and γλαυκοῖς eyes].[291]

Iamblichus

(i) Date: c. 250-c. 325 A.D.[292]

(ii) Apud Simplicium: *In Aristotelis Categorias Commentarius* 8 = p. $231^{4\text{-}6}$ (Kalbfleisch).

[Γλαυκότης or being snub-nosed are not exaggerations of normal physical conditions. People who are γλαυκοί or who have snub-noses are like that by nature].[293]

Inscriptiones Graecae

2^2.759, col. 2^{11} A short frock, dyed γλαυκειοῦν, part of a list of clothes dedicated at a temple. Date: fourth century B.C.?

$12^8.51^{22}$ τῶν γλαυκανέων—objects, possibly of metal. Date: second century B.C.

1^2.463 (editio minor) γλαυκόπιδι—epithet of Athene.[294]

Commentary

$12^8.51^{22}$ This is part of a temple treasury-list found on the island of Imbros. The list contains objects of gold and silver, as well as a certain amount of emery. It has been suggested[295] that γλαυκανέων is a mistake for γαληνείων = objects made of lead, especially as lead is found on the island, but I do not find the suggestion very convincing.[296] The degree of supposed corruption is too high and there is no evidence of error elsewhere on the stone. Perhaps the reference is to objects made of bronze which have developed a γλαυκός patina.[297]

Josephus

(i) Date: born 37/8 A.D.

(ii) *Antiquitates Judaicae.*

12.113 Demetrius also told him [Ptolemy] what was reported of Theodectes, the tragic poet. When he wanted to mention what was written in the Holy Book in one of his plays, his eyes γλαυκωθείη.[298]

'Longus'

(i) Date: not known.

(ii) *Daphnis and Chloe.*

2.32 [Philetas's] youngest son, Tityrus came along with him, a πυρρόν lad, γλαυκὸν, λευκόν, and high-spirited.

Lucian

(i) Of Samosata. Date: second century A.D.

(ii) *Dialogi Deorum.*

8 [Of Athene]. She is γλαυκῶπις but (ἀλλά) the helmet embellishes this.

Dearum Judicium.

10 [Aphrodite to Athene]. Are you afraid you may be criticised for the γλαυκόν of your eyes if it is seen without fear?

Dialogi Meretricii.

2.1 I don't think much of your fiancée's looks...Don't be put out because her eyes are very γλαυκούς.

Charidemus (pseudo-Lucian).

11 Γλαυκῶπις [an epithet of Athene which she would prefer because it alludes to her beauty].

Philopatris (pseudo-Lucian).

8 [Triepho asks if Athene Γλ. is invincible because she wears the Gorgon's image which is fearful to look at].

Commentary

Too frequently, these first three passages have been cited as evidence that the colour γλαυκός was not liked in the Classical world as a whole, a universal application of particular reference, which has never been subjected to thorough criticism. First of all, one should remark that Lucian could not resist using well-known motifs, themes, stories, symbols, in such a way that they were made to seem ridiculous or self-condemnatory, or to become adjuncts of the humour, satire, or parody which Lucian was constructing around the gods, the heroes, or his own contemporaries. In *Peregrinus*, for example, a vulture rises from the hero's funeral pyre, not an eagle, because Lucian wanted to thwart the reader's expectations and to criticise the pretensions of Theagenes for comparing Peregrinus with a god. Gods rise to heaven on eagles, but not mere

men. They journey on something grotesque—the obscene symbol of a catamite.[299] Thus, the eagle of Zeus and of Imperial apotheosis has been degraded, the reader surprised, and an admirer's pretensions deflated.[300]

Lucian liked repeating a joke, with variations, and did not hesitate to do so. Indeed, such repetitions are a feature of his work,[301] and it is clear that the passages from *DD* and *DJ* are similar in nature. In the first, Hephaestus has just split open Zeus's head in order to assist the birth of Athene. He admires her armour but does not seem to be very pleased with the colour of her eyes, and ἀλλά shows that he is looking for some mitigating feature. He finds it in her helmet. "It's a pity her eyes are that colour, but the helmet makes them look better" is the meaning—a metallary would notice the quality of the workmanship, of course.[302]

In *DJ*, Paris says that he wants to see the three goddesses naked. Aphrodite offers to undress first and makes a disparaging comment about Hera's Homeric epithets λευκώλενος and βοῶπις. Athene insists that Aphrodite first take off her magic girdle, adding that she ought to remove her make-up too as it makes her look like a prostitute. In accordance with one's expectations, Aphrodite who has just sneered at Hera's Homeric adornments now attacks Athene's—her helmet and the γλαυκόν of her eyes. Without the frightening helmet, she says, people would find Athene's eyes unpleasant. Lucian's variation is obvious. In both cases, the helmet serves to distract people's attention from eyes of an unamiable colour, but Lucian has changed the context in which the joke appears.

Now, there is evidence to show that, under the Empire at least, γλαυκοί eyes were not fashionable. Dioscorides, Galen, and the *Cyranides* collection had recipes for changing the light eye-colour to a darker,[303] and *Dialogi Meretricii* 2.1 reinforces the notion of modish distaste. I am struck by the way in which Lucian emphasised the role of the helmet, and am reminded of Tertullian's contemporary tirade against extravagant hair-styles, including one in which the hair was shaped like a helmet.[304] Amid the cross-currents of what Reardon called Lucian's "complexe mécanisme litteraire" is satire of fashionable women one possible stream? Be that as it may, Lucian's three references to γλαυκός suggest that he had specific jokes to make, and that they should be used much more carefully than has been the practice hitherto in any assessment of ancient attitudes to γλαυκός.[305]

Methodius Olympius

(i) Date: obiit 311 A.D.

(ii) *De Lepra.*

5.1 The great lawgiver instructs us how to guard against and avoid four kinds of *lepra* with different colours—λευκαῖνον, γλαυκαῖνον, χλωρίζον and πυρρίζον—which break out on our bodies from the original source. He says that γλαυκαῖνον and λευκαῖνον inflict eruptions suddenly upon healthy flesh and make the man rotten.[306]

5.3 The fear which awakens in the soul violent emotion and terrible consternation as a result of evil [was called γλαυκαίνουσαν *lepra* by Moses].

6.1 Let us drive away hypocrisy and cowardice in time of persecution, for it is a γλαυκίζουσα *lepra.*

Commentary

From the medical point of view, it is difficult to define exactly what *lepra* was, since it seems to have covered a wide variety of non-infectious skin conditions (dermatoses) as well as leprosy itself. *Lepra* is regularly translated as 'scaly', although this is not an exact rendering of the Hebrew *tsarat* which means struck by God.' *Lepra,* therefore, was a purely Greek term intended to indicate any skin disease which caused discolouration, especially white, with or without a nodule developing in the dermis.[307] *Leviticus* 13 seems to refer not only to a white nodule accompanied by depigmentation of the local hairs, but also to almost any form of infection of the hair follicles. For example, staphylococcal folliculitis imparts a reddish hue to the infected area and could easily fit the description of 13.18 or 13.42.[308]

There were many different kinds of *lepra,* as the ancient writers inform us.[309] *Lepra alphos* was psoriasis—whitish flakes of epidermis on a dull reddish skin which is dry and cracked, a condition long-lasting and difficult to cure.[310] *Lepra asturica* was pellagra which is an eruption first showing as an erythema on areas exposed to sunlight or heat, then a redness with superficial flaking, then a patch of dusky, red-brown colouring.[311] *Lepra arabicum* was probably what we now call leprosy.[312]

In leprosy itself, the normal discolouration of the skin consists of increasing pallor leading to whiteness. Sometimes, however, a red-

dish patch is the first sign of the lesion and this then spreads over the adjoining area.[313] Determination of different changes in skin colour is complicated by several factors. For example, fungal infections may occur in leprosy and these contribute additional discolourations to certain areas—hands or feet or elbows. The skin surrounding an infected area may respond differently to irradiation and appear more bronzed than other regions.[314]

There are also skin infections, perhaps caused by microorganisms related to those of leprosy, which can produce discolourations similar to those seen in leprosy itself. *Lupus vulgaris*, a form of cutaneous tuberculosis, for example, produces a plaque composed of nodules of 'apple jelly' colour and consistency. In its early stages, the discolouration can be yellowish-pink.[315] Moreover, some skin eruptions which produce reddish changes in the skin of white people will look bluish in negroid skin and greenish in asiatic.[316]

In consequence, any exact definition of the diseases to which Methodius was referring is probably impossible. His λευκαῖνον *lepra* could be leprosy or psoriasis, his πυρρίζον could be pellagra or lupus vulgaris. Both γλαυκαῖνον and χλωρίζον infections can be accounted for by infections additional to leprosy, or by the appearance of leprous inflammation in non-European flesh.

But the most significant fact about Methodius's account is that he is using *lepra* in its various aspects as a symbol of moral, not physical, decay. Distress of mind and malice are called χλωρίζουσαι; affectation, or arrogance, is πυρρίζουσα; taking delight in carnal pleasure is λευκαῖνος—the true leprosy—while hypocrisy and cowardice are γλαυκίζουσαι. Here, then, is the true reason for his using γλαυκός since it is connected with cowardice and moral turpitude by other writers, too.[317]

Leviticus itself does not contain γλαυκίζουσα but ξανθίζουσα. Presumably, Methodius could not find a suitable symbolic equivalent for the latter and substituted the former for the sake of his homily. His γλαυκίζουσα λέπρα is therefore largely a state of the soul, but its impact as an image would not make much sense unless he had been able to point to a real physical condition corresponding with it, as he could with each of the others.[318]

Nilus Ancyranus

(i) Date: obiit c. 430 A.D.

(ii) *Epistulae.*

1.224 [In *Leviticus*, Moses describes four types of *lepra*], λευκαίνουσαν, καὶ γλαυκίζουσαν, καὶ χλωρίζουσαν, καὶ πυρρίζουσαν.[319]

Papyrus Graecus Holmiensis

(i) Date: third or fourth century A.D.

(ii)

19.28 Dye with γλαύκου twice a day, morning and evening, as long as the dye is usable.

21.42-3 Take the wool and mordant with woad which dyes γλευκισμός [*sic*].

26.30 After γλαυκόσας, sprinkle the wool with ashes...then press the liquid out of potter's clay and wash off the ἀπογλαυκωθέν wool with it.[320]

Commentary

The process here described is that of dyeing with woad (*Isatis tinctoria*). It is the leaves of the plant which provide the dye. If gathered young, they will produce a light blue colour. Left to mature, they provide a much darker pigment.[321] The dye comes from *indigotin*, a substance in which woad is rather poor. Indigotin is reduced to usable form by allowing the leaves to ferment. Cloth can then be dipped in the liquid and hung up to dry. The depth of colour will depend on the quality of the dye produced, the number of times the fabric is dipped, and the reaction of the dye to sunlight.[322]

Papyrus Leiden X

(i) Date: late third century A.D.[323]

(ii) 14.8-14 'Αντιγλαυκειμός (Substitute for γλαυκός dye).

In place of γλευκίσαι [*sic*], take metal dross (σκωρία), cut it up fine until it becomes like soap. Boil it with vinegar until it turns hard. Then take wool before it has been washed in soapwort and mordant it. You will find that it is πορφυρίζον. Now dye it with the colours you have.

Commentary

Mordant-dyes, apparently, needed a mordant to be precipitated on to the fabric which one wished to dye. Iron-acetate (iron oxide) was commonly used and is probably what is meant by σκωρία, although one cannot be sure.[324] I have tried boiling iron dross and iron rust in a mild solution of acetic acid, but found that neither turned hard. Nor did the solution produce any colour when wool was soaked in it. This is not necessarily a reflection on the accuracy of the *Papyrus*, since neither ingredients nor the process itself are described in the full detail required by a modern experimenter. Presumably the idea of the recipe was to produce both a fixative and a preliminary darkening of the fabric so that the final shade would be both fast and deeper in tone.[325]

Papyrus Magicus Parisiensis

(i) No date.

(ii)

2.2137-8 γλαυκῶπιν, [referring to a cat].
2.2308-9 The body of a γλαυκῆς woman with her legs parted.

Commentary

There is a surprising variety in the colour of cats' eyes, despite a popular notion that the most common colour among them is green. Brown, green, yellow, copper, and blue, for example, are found among the Persians.[326] Now, exact colour was important to magicians. We have one spell which demanded a completely black cat;[327] another bade the magician take a white or brown cock but avoid a black one.[328] Even the colour of the mortar in which ingredients were ground could be important.[329] So γλαυκῶπις here must be a specific direction to the magical practitioner. From evidence of the meaning of γλαυκός and γλαυκῶπις elsewhere, one can hazard a guess that the cat could be a variety of Persian, but no firm conclusion is at all possible.[330]

Papyrus Petrie

(i) Date: 237 B.C.

(ii)

13.(1).4 [Description of a testator from Illyria]. γλαυκός, rather hook-nosed.

Commentary

Illyria referred to the area neighbouring Macedonia, Epirus, and the Greek cities on the Adriatic coast. The description of the man agrees with others of Northern tribes, for example, that of Xenophanes on the Thracians (fr. 14) and of Solinus on the Albanians (*Collectanea rerum memorabilium* 15.5).

Papyri Russischer und Georgischer Sammlungen

(i) Date: second century A.D.

(ii)

1.20 (col. 2).55 γλαυκήν
ibid. 57-8 [γλαύ]κωμα
ibid. 60 γλαύ[κωμα
ibid. 63 γ[λ]αυκήν[331]

2.19.36 [Payment to be made of a medium-sized pitcher of new γλαυκοῦ wine].[332]

Commentary

[2.19.36] The word γλαυκοῦ, it must be admitted, is odd since this is the only example in prose of its being applied to wine. One expects a literal meaning, except that new wine is neither blue, nor green, nor grey, and one can hardly presume the word means 'sparkling' in this context. Sophocles, however, compared the black bile of the hydra with this fermenting grape juice,[333] a comparison which would lose its point if the juice came from 'white' grapes, and as black grapes often have a distinct blue tinge to their skin, I suggest that γλαυκός here is a technical term for new wine made from them.[334]

Papyri Cairo Zenon

(i) Date: third century B.C.

(ii)

59076.10 [Toubias informs Apollonios that he has sent him a eunuch and four boy slaves. One of these, Okaimos,[335] aged about seven, is described thus]. Round-faced, rather snub-nosed, γλαυκός, with reddish hair and a smooth complexion.[336]

59376.10 [An account of barley for horses, including "the γλαυκός horse"].[337]

Pausanias

(i) Date: second century A.D.

(ii) *Descriptio Graeciae.*

1.14.6 When I saw that the statue of Athene[338] had γλαυκούς eyes I discovered that the legend about them comes from Libya, because the Libyans say she is the daughter of Poseidon and Lake Tritonis and therefore has γλαυκούς eyes like Poseidon.

4.35.9 The γλαυκότατον water I know from my own experience is that at Thermopylae—not all of it, but that which flows into the swimming baths.[339]

9.21.1 [Eyes of statues of Tritons in Rome are γλαυκά].[340]

Commentary

[1.14.6] He may have 'found out' the story by looking it up in Herodotus (4.180), since an appeal to Libyan authority for a legend about Athene's birth is odd, to say the least.[341] Attempts to site Lake Tritonis have proved fruitless. Perhaps the most attractive suggestion was made by Sir Robert Playfair. "About ten miles to the eastward [of Benghazi] is the Lake Tritonis, with a small island, where was the Temple of Venus, now Monastier, and to the northward of this, the lake Zeian or the Beautiful."[342]

Zeian is Ain Zeiana, 'the blue lagoon', and although modern geography is not quite in accord with every detail of this account, it is perhaps possible that a blue lake was known to be in that area and became attached to Tritonis and Poseidon because the blue of its waters matched the blue of the Mediterranean.[343]

Pelagonius

(i) Veterinarian. Date: perhaps fourth century A.D.[344]

(ii) Apud *Geoponica.*

16.2.1 [Some people rank ἑτεροφθάλμους horses among the finest—for example, Bucephalus which belonged to Alexander of Macedon...He should carry his neck high, be proud, γλαυκόν, skittish,[345] etc.]

Philostratus

(i) Date: born c. 170 A.D.

(ii) *Apollonii Vita.*

2.5 [On looking at the stars from mountain tops]. Such lookouts show you the sky is γλαυκότερον.[346]

7.42 "Tell me, lad," he said, "surely the Emperor does not think you are γλαυκόν when, as I can see, you are μελανόφθαλμον?"

Gymnasticus.

25 [Men's characters can be seen in their eyes, of which there are various kinds, μελανοφθάλμων, χαροπῶν, γλαυκῶν, etc.]

Heroicus.

4.4 [Sthenelaus]. Γλαυκόν, hooknosed, with hair which was, so to speak, ὑπέρυθρον and close to blood-colour.

Imagines.

1. proem 2.

The plastic artist does not bring out the varied brilliance of eyes in his work at all, but painting recognises the χαροπόν eye, the γλαυκόν, and the μέλαν.

1.8.1 [Painting of Amymone]. Here hippocamps draw the chariot, creatures with webs on their hoofs. They are good swimmers, γλαυκοί and, in actual fact, very like dolphins.

1.8.2 [Same picture]. A wave is already arching over for the wedding, still γλαυκόν and χαροποῦ in its appearance.[347]

1.13.9 [The Bosphorus]. In the γλαυκῷ bloom of the sea, the colours of the fish are varied.

1.19.3 [A pirate ship], is painted with γλαυκοῖς colours.

1.27.3 He also paints Oropus as a young man among γλαυκοῖς women—sea nymphs.[348]

2.6.1 Around it grow the wild olive trees, γλαυκῷ in colour.

Commentary

A. [*V.A.* 7.42]

Apollonius, the speaker, is being ironic. Domitian has fallen in love, as have many others, with a beautiful Arcadian youth who has been virtuous enough to repulse his lover's attentions. "I had come

to Rome to study law," says the boy, "when the Emperor regarded me with evil eyes (κακῶς εἶδεν)." Apollonius pretends that the boy means he is ugly, an offence to the eye. "Does the Emperor think you γλαυκός, etc.?" he replies. "How can he have received a false impression?"

Now, κακῶς εἶδεν may also suggest the 'evil eye', so Apollonius's joking reply could begin, "Does the Emperor think you have the evil eye, when it is quite obvious you have not?" In later times, blue eyes were certainly supposed to exercise an evil inflence. "In the neighbourhood of Mount Hymettus," said J. C. Lawson, "it appears that blue eyes fall most commonly under suspicion: and this is the more curious because in Attica, with its large proportion of Albanian inhabitants, blue eyes are by no means rare."[349] Hence, blue beads were worn to avert the danger.[350] Even though there is no unmistakeable ancient example of γλαυκός being used in this manner, it is difficult not to suppose that the tradition had a long history behind it.[350a]

B. [*Imagines* 1.19.3].

The intention was to camouflage them by dyeing the sails and lines the same colour as the sea,[351] a tradition which seems to have lingered into modern times. Ernle Bradford has observed that, "the fishing boats which now shelter in the northern harbour [of Favignana, off Sicily], have the *oculus* painted on their bows, and bright blue is still a favourite colour."[352]

Philostratus Junior

(i) Date: probably early third century A.D.[353]

(ii) *Imagines*.

2.2 [A barbarian] looks up at Marsyas, his eyes γλαυκιῶν.[354]
8.2 [Athene] looking γλαυκόν from under her helmet.
8.3 [River Phasis]. His eyes γλαυκιῶντες.[355]

Plato

(i) Date: 428/7-348/7 B.C.

(ii) *Phaedrus*.

253e [The two horses]. But the other is crooked, heavy, badly made. His neck is short and thick, his nose flat, his colour μελάγχρως, his eye is *glaukos* (γλαυκόμματος) and bloodshot.[356]

Timaeus.

68c Κυανοῦ mixed with λευκῷ is γλαυκόν.[357]

PLOTINUS

(i) Date: 205-270 A.D.

(ii) *Enneads.*

4.4.19 One says that a man is in pain because his finger hurts, as one says that he is γλαυκός because he has a γλαυκόν eye.[358]

PLUTARCH

(i) Date: c. 50-c. 120 A.D.

(ii) *Marcus Cato.*

1.3 He had a ὑπόπυρρος appearance and was γλαυκός.[359]

Sulla.

2.1 The γλαυκότητα of his eyes, which was terribly sharp and powerful,[360] was made even more fearful by the colour of his face.

Timoleon.

37.6 [His] vision was obscured by *glaucoma* (ἀπογλαυκωθῆναι) and everyone knew he was going blind.[361]

Moralia.

De Pythiae Oraculis 4 = 396c.

The thinness of the air...also makes the colour [of bronze] more pleasing and γλαυκοτέραν by mixing light and lustre with the κυάνῳ.

De sera numinis vindicta 26 = 565c.

Where there is γλαύκινον [on the soul], some intemperance in pleasure has scarcely been rubbed out.[362]

De genio Socratis 22 = 590f.

[γλαυκότητα, colour of the sea turned white (ἀπολευκαίνεσθαι) by rivers of fire emptying into it].[363]

Praecepta gerendae reipublicae 28 = 821e.

When the Agrigentines had expelled Phalaris, they passed a law that no one should wear a γλαύκινον [garment] because the tyrant's (attendants) used to be clad in γλαυκίνοις.

De facie quae in orbe lunae apparet 21 = 934d.

If [the Moon] is eclipsed when dawn is already near, she takes on a κυανοειδῆ and χαροπήν hue, for which especial reason the poets and Empedocles call her γλαυκῶπιν.

Ibid. = 934e.

A star or fire could not in shadow shine out μέλαν or γλαυκόν or κυανοειδές.[364]

Ibid. = 934f.

[One of Homer's adjectives for the sea is γλαυκήν].[365]

Commentary

A. [*De Pythiae Oraculis* 4].

The context is this. A group of people is discussing the statues of Lysander and his officers, erected in the temple at Delphi after the battle of Aegospotami, and one of the interlocutors, Diogenianus, asks, "What do you think has been the cause of the colour of the bronze here?" The question was prompted by a remark made earlier by a foreign visitor, a connoisseur in works of art, who admired the patina on the bronzes because it bore no resemblance to verdigris or rust (οὐ πίνῳ προσεοικὸς οὐδ' ἰῷ), but shone with a deep blue tinge (βαφῇ δὲ κυάνῳ στίλβοντος). He noted that this added something to the statues of sea-captains, since they stood there with the true complexion of the sea and of its depths, (οἷον ἀτεχνῶς θαλαττίους τῇ χρόᾳ καὶ βυθίους ἑστῶτας).

Then he asked if this were the result of artificial treatment by ancient craftsmen but, after a long discussion by the group, it is concluded that the patination is natural, caused by a reaction between the keen hill-air of Delphi and the metal. "The air...works its way into the bronze and cuts it, disengaging from it a great quantity of rust like dust (πολὺν ἰὸν ἐξ αὐτοῦ καὶ γεώδη)." The rust does not escape,

but gathers and because of its abundance effloresces and acquires a brilliance and lustre on its surface, (λαμβάνειν αὐγὴν καὶ γάνωμα περὶ τὴν ἐπιφάνειαν). Someone else adds that the thin air makes the colour itself more agreeable and γλαυκοτέραν by blending light and lustre with the blue, (ἀναμειγνύουσα τῷ κυάνῳ φῶς καὶ αὐγήν).

Now, there are three things which affect the colour of bronze patina: one is the composition of the bronze itself; another is the effect upon it of impurities in the atmosphere; the third, the thickness of the oxide film.[366] Most Classical bronze consisted mainly of copper alloyed with zinc, tin, lead, or silver. Copper predominates by between 67% and 95%.[367] There are two kinds of copper carbonate, one green, the other blue. The blue—azurite—is formed particularly under dry conditions such as one might expect in the mountain air of Delphi. The carbonate content is higher, the hydroxide lower, therefore the colour will be blue.

A *thin* film on the bronze will tend to be blue rather than green, though there is a very wide range of colour in patinas, depending partly on the thickness of the film. A very thin film could be bluish-grey.[368] From Plutarch's description, it appears that the Delphi bronzes had acquired, quite naturally, (as he concludes), a deep blue patina. The play of the hard, intense Greek sunlight upon the polished surface of the statues will have caused them to shimmer with a subtle bluish light reflected off the underlying deeper blue, and it is this that Theon says is γλαυκοτέραν. So γλαυκός refers to a light blue-grey tinge.[369]

B. [*Praecepta gerendae reipublicae* 28].

Γλαύκινος, not a common form, is what Debrunner called 'Stoffadjectiva', -ινος being the equivalent of -εος, or -ίνεος in poetry.[370] Debrunner proposed the general rule that in post-Homeric Greek, -ινος was attached to adjectives derived from the names of plants and -εος to those derived from the names of metals. This suggests that γλαύκινος is connected with some plant which produces a characteristic colour, γλαύκινος.[371] Dyeing with woad brings about a γλαυκός colour, and it is apparent that Phalaris wanted his attendants clothed in a distinctive uniform. I know of only one other group of people which wore blue as a uniform, and that was the Mediterranean pirates to whom Vegetius referred.[372] It is possible that, for reasons of his own, Phalaris adopted the same shade.[373]

C. [*De facie quae in orbe lunae apparet* 21].

Changes in the colour of the Moon as it enters an eclipse were remarked by ancient astronomers and taken to be significant. The regular colour of the eclipsed Moon is reddish-brown, quite at odds with Empedocles's γλαυκός, so the epithet cannot refer to the whole disk of the Moon.[375] Sometimes, however, at the approach of dawn, when the Moon is low in the sky, near the horizon, if circumstances make the sky yellowish, the Moon can appear blue by contrast, and this suggests that when the Moon is going into eclipse her unshadowed area may appear bluish for a while in contrast with the darkening part.[376]

Indeed, the variations of colour can be quite spectacular. Minnaert wrote of "rings coloured successively bright sea-green, pale golden, copper, peach-blossom pink."[377] Sir John Herschel, however, gave the clearest description of what I take to be γλαυκῶπις. During an eclipse, he said, "the *umbra* is seen to be very far from totally dark; and in its faint illumination it exhibits a gradation of colour, being bluish, or even (by contrast) somewhat greenish, towards the borders for a space of about 4′ or 5′ of apparent angular breadth inwards."[378]

I am inclined, therefore, to understand γλαυκῶπις to refer to the crescent of the Moon during an eclipse, not the whole face, an inclination which reinforces my earlier suggestion that the link between γλαύξ and the γλαυκή Moon is the bird's nictitating membrane, seen more often, perhaps, as a crescent than as a veil drawn completely over the eye.[379]

Julius Pollux

(i) Date: second century A.D.

(ii) *Onomasticon.*[380]

2.4 (61) [γλαυκός and γλαυκίων[381]—part of a list of different eye colours].

4.18 (117) [γλαύκινα—one of a number of garments. This colour was worn by actors to indicate adverse fortune, particularly exile].[382]

4.18 (118) [γλαυκόν[383]—a cloak for an actor, to indicate distress].

4.19 (141) The mask of Thamyris had one eye γλαυκόν and the other μέλανα.[384]

5.12 (68) The hare is γλαυκός or χαροπός.[385]

Ptolemy

(i) Of Alexandria. Date: floruit c. 127-148 A.D.

(ii) *Tetrabiblos.*

3.12.5 Mars, when rising, makes his subjects λευκερύθρους, tall and robust, γλαυκοφθάλμους, with thick, rather curly hair, etc.[386]

3.12.10 Saturn causes [blindness] by suffusion, cold, ἀπογλαυκώσεων, and suchlike.[387]

Rufus

(i) Of Ephesus. Date: second century A.D.

(ii) *Nomina Corporis.*

25. In accordance with the colour of the iris, one says that [the eye] is μέλανα, πυρρόν, γλαυκόν or χαροπόν.

Fragmenta.

116 The ancient doctors thought that γλαύκωμα and cataract were the same thing. But modern opinion is that γλαυκώματα are changes in the crystalline fluid altering under the influence of moisture to γλαυκόν...All γλαυκώματα are incurable.[388]

Strabo

(i) Date: 64/3 B.C.-c. 21 A.D.

(ii) *Geographica.*

5.2.5 [In the neighbourhood of Luna], the quarries of λευκοῦ and mottled γλαυκίζοντος[389] marble are so numerous....that the material for most of the better works of art in Rome...is supplied from there.

Commentary

Strabo was referring to that white marble streaked with blue, which is known as *bardiglio*. Both this and the better type of pure white marble came from quarries opened during the reign of Augustus[390] near what is now called Carrara.[391]

Vettius Valens

(i) Date: second century A.D.

(ii) *Anthologiarum Libri.*

p. 69.10 (Kroll)[392] If the Moon appears when Saturn is in the ascendant, changes in fortune will take place. The vision will be cataracted or the eyes become glaucomatous (ἀπογλαυκωθήσονται).

Xenophon

(i) Date: 428/7-c. 354 B.C.

(ii) *Cynegetica.*

5.22-3 There are two species of hare. The large [hares] are ἐπίπερκνοι in colour with a large λευκόν patch on their forehead. The smaller are ἐπίξανθοι with a small λευκόν patch.[393] The larger hares have spots round the scut; the small, by the side of it. The eyes of the larger are χαροποί,[394] those of the smaller, ὑπόγλαυκοι. The μέλανα at the tips of the ears is broad in the former, narrow in the latter.

Commentary

First of all, one must be sure of the meaning of ἐπίπερκνοι. Pollux, (1.61), said it was the colour of an olive during summer and, probably with reference to this passage of Xenophon, "this is the colour of a ripening olive, neither green nor yet turned black," (5.67). A poem by Philippus described an olive already turning dark.[395] It is worth quoting the whole poem since Philippus, like so many of the *Anthology* poets, used colours in contrasting pairs.

ῥοιήν ξανθοχίτωνα, γεραιόφλοιά τε σῦκα,
    καὶ ῥοδέας σταφυλῆς ὠμὸν ἀποσπάδιον,
μηλόν θ' ἡδύπνουν λεπτῇ πεποχωμένον ἄχνῃ,
    καὶ κάρυον χλωρῶν ἐκφανὲς ἐκ λεπίδων,
και σίκυον χνοάοντα, τὸν ἐν φύλλοις πεδοκοίτην,
    καὶ πέρκνην ἤδη χρυσοχίτων' ἐλάην,
σοί, φιλοδῖτα Πρίηπε, φυτοσκάφος ἄνθετο Λάμων,
    δένδρεσι καὶ γυίοις εὐξάμενος θαλέθειν.

The brilliant green of the shells enclosing a walnut is balanced, as it were, in the middle of the poem between four other colours con-

sisting of two lighter shades contrasted with two darker, the light yellow pomegranate with the darker yellow bloom on a ripe olive, and πέρκνην, the ripe olive itself with ῥοδέας σταφυλῆς, black grapes in an early roseate stage as they begin to acquire their colour, from which it appears that the olive shade is a very deep red, not yet turned purple or black.[396]

The verb περκάζειν was used also of ripening grapes, "ὅταν ἄρτι περκάζῃ σταφυλή," which points to a fairly light shade of reddish-purple.[397] Presumably it was the mottled effect of such ripening which led Hesychius (s.v. περκάζει) to offer μελανίζει and ποικίλλει as alternatives and to describe πέρκωματα as "τὰ ἐπὶ τοῦ προσώπου ποικίλματα."[398] Porphyry described the flowering sprout of the broad bean (*vicia faba*) as περκάζοντος which probably means that the corolla is blotched with blackish patches.[399]

A similar blotched effect was noted by Hippocrates in his description of bone mortifying after a head wound.

"When a person has sustained a mortal wound on the head...you may form an opinion of his approaching dissolution...from the following symptoms...When a bone is broken...[and] the case has been neglected as if the bone were sound, fever will generally come on before the fourteenth day if in winter, and in summer the fever usually seizes after seven days. When this happens, the wound loses its colour (τὸ ἕλκος ἄχροον γίνεται),[400] and the inflammation dies in it; it becomes glutinous and appears like a pickle being of a tawny and somewhat livid colour (χροιὴν πυρρὸν, ὑποπέλιον).[401] The bone then begins to sphacelate,[402] and turns black (περκνόν) where it was white before (λευκόν), and at last becomes pale (ἔπωχρον)[403] and blanched (ἔκλευκον)."[404]

The process here described probably follows a course like this.

1. The head wound is neglected and fever sets in.
2. The wound becomes colourless and emits a purulent discharge.
3. The inflammation 'ceases', that is to say, becomes less apparent.
4. The wound becomes viscous as haemotoma forms, part of the natural healing process.

Since it is already known that the patient eventually died, it is presumed that

5. the bone begins to turn gangrenous at this point,
6. where before it was 'white', that is, healthy. It turns darker and darker (περκνός) because blood is seeping through from the

underside of the bone. It is the build-up of blood in the skull which causes the spasms to which Hippocrates referred later.
7. The bone turns purulent as osteomyelitis sets in, and
8. is observably off-white when the man is dead and the wound is examined again.

If this description is correct, περκνός is more likely to mean 'darkish red-brown' than black, which revision agrees with the general shades found in ripening grapes or olives.[405]

As D'Arcy Thompson pointed out,[406] Xenophon is the only author (with the exception of Pollux who was simply paraphrasing him) to use the compound adjective ἐπίπερκνος, which suggests that he was trying to be particularly accurate in his description of the larger hares. One meaning of ἐπι is 'on top of'. Hence, the colour has the appearance of being superimposed on another. A few examples of similar compounds will suffice to illustrate the point. Sea rocks are ἐπίχλοοι with sea weed;[407] Croesus offered Apollo couches plated with gold and silver;[408] patina is a colouring imparted to bronze;[409] a poet colours his phrases as a painter his picture;[410] some birds seem to derive their colours from the effect of light playing upon their plumage.[411]

Xenophon's larger hares, then, were probably a very dark brown which looked as though it was superimposed on a different ground because it was slightly streaked or mottled. They had a big white patch on their forehead and broad black tips to their ears. The smaller hares were more tawny-yellow,[412] with the same streaked or mottled effect, a small white patch on the forehead and narrow black tips to their ears. Their eyes were of light, but different, shades.

This description seems to coincide with Varro's remarks on hares. The Italian hare, he said, had short fore-legs and long hind-legs. The upper part of its body was dark (*superiore parte pulla*), its belly was white (*ventre albo*), and its ears were long.[413] He noted, too, that the hares of Macedonia were very large. J. André has discussed the various usages of *pullus* and, although he did not mention Varro, concluded that the adjective can refer to various dark shades including reddish-black and greyish-brown.[414]

Paintings and mosaics of the hare show much the same range of colour—light brown in the Villa Erculia, and in a mosaic from Zliten;[415] very dark brown in another from Carthage.[416] A mosaic from the House of Menander in Mytilene depicts a hare beige and

pink on top with a white belly. Its head is white and its eye black; its ears are picked out in purplish-grey with a black outline.[417] Three Corinthian plastic vases of hares are painted with a brown varnish, and one is stippled all over to represent a brindled coat.[418] Hares on vases are usually shown with marks to represent fur and if the vase is polychrome they are given light brown bodies.[419]

I suggest, then, that Xenophon's larger hares had a very dark brown coat and his smaller a light brown. Identification of the species, however, is difficult. D. B. Hull said that they were varieties of the European hare,[420] and this agrees with H. A. Macpherson,[421] but neither tells us anything about the colour of their eyes. Neither hare was *lepus timidus*, since the description does not quite fit, and this hare prefers mountainous country and is found only further North than Greece.[422]

The Brown Hare (*Lepus europaeus*) has a brown summer coat which changes to a brownish-grey in winter. The tips of its ears are black and its eyes are brown.[423] The smaller Mediterranean hare (*Lepus capensis*) is similar both in markings and in colour and also has light brown eyes.[424] It is possible, however, that Xenophon's second species was the Old World Rabbit (*Orytolagus cuniculus*) which was, for a long time, considered to be a small species of hare. Its coat is usually a fine mixture of black and light brown hairs, and its eyes are brown.[425] There is no species of hare in the Mediterranean area with light blue or grey eyes.[426]

Xenophon, however, was a hunter and obviously not the kind of man to make a silly mistake or to record details which he knew to be untrue of the hare's appearance. One must assume, therefore, that when he wrote γλαυκοί he meant γλαυκοί. The only explanation I can offer is that he had observed a high incidence of wall-eye among the smaller hares (or rabbits) and that this may have have led him to think a blue eye commoner than it was.

VERSE

Alcaeus

(i) Of Mytilene in Lesbos. Date: born c. 630/20 B.C.

(ii) *Fragmenta.*

115a.8 γλ]αύκαν ... ἀμπελ[

129.26 γλαύκας.[427]

Commentary

115a.8 Restoration of the verse is difficult, and not everyone agrees with the version produced by J. M. Edmonds in the Appendix to his Loeb *Lyra Graeca* I. It is clear, however, that in this verse γλαύκαν refers to a vine, not to a type of grape,[428] and so there appears to be a prima facie case for taking γλαυκός to mean *green* in this context.

There are, however, two objections to one's doing this. One is that γλαυκός everywhere else means *light blue-grey*, the other, that Alcaeus was not given to oddities of diction or peculiar adjectival usage.[429] Therefore one should look for a type of grape-vine whose appearance could give rise to the distinctive epithet γλαυκός.

Such a one is *Vitis vinifera lucana*, the Dusty Miller Grape, whose leaves are greyish-green and covered with a white cobwebby down which makes them look as though they had been dusted with flour.[430] This appearance is particularly noticeable in the young plant—is ἀμπελίς the required restoration in Alcaeus's line?—and from a distance, especially, must have created much the same visual effect as olive-leaves, also called γλαυκοί. *Green*, therefore, is not accurate enough a translation: *glaucous* in the botanical sense, is closer to the intended notion.

ANACREONTEA

(i) Date: perhaps between 50 B.C. and 50 A.D.[431]

(ii) *Poemata.*

57b.4 Has someone...engraved tender Aphrodite on the γλαυκᾶς [sea]?

Commentary

Aphrodite is 'engraved' because the poem describes a dish with a picture of Aphrodite swimming scribed or inset upon it. This is one of the few times γλαυκή is used by itself as a noun,[432] an oddity which perhaps caused some glossator to add, "ἐπὶ νῶτα τῆς θαλάττης."

ANONYMOUS

(i) Date: these poets range from the second century B.C. to the second A.D.

(ii) *Lyrica Adespota Alexandrina.*

10.3 Near the γλαυκῆς [sea].[433]

A.G.

10.9.5 [To fishermen]. Honour me, the little γλαυκόν Priapus under the lentisc bush set in a grove, the guide to your prey.[434]

A.G.

15.11.4 Even greater on earth grew the city's delightful reputation when she was filled with the γλαυκῶν favours of the virgin goddess.[435]

Favorinus: *De Exilio.*

13.1 There are other opulent [cities], and they are cared for by some god, whether it be Zeus or γλαυκᾶς Athene.[436]

Plutarch: *Marcus Cato.*

1.3 [On Cato's appearance]. Πυρρόν, snappy, γλαυκόμματον.

Antipater of Sidon

(i) Date: floruit c. 120 B.C.

(ii) *A.G.*

7.425.8 This γλαύξ [on my tomb] shows that I was a priestess of γλαυκᾶς Athene.[437]

Antiphilus

(i) Of Byzantium. Date: c. first century A.D.?

(ii) *A.G.*

6.250. Accept...for your κυανότριχα hair, spikenard enclosed in a γλαυκῆς glass bottle.

Commentary

Translators have been unsure about how to translate γλαυκῆς. Paton rendered it as *grey* (Loeb 1917), Waltz as *vert d'eau* (Budé 1931), Beckby as *blauen* (1957), and Gow-Page as *green* (1968).

Now, it is true that most ancient glass was of a greenish tinge, unless it had been artificially coloured.[438] This was caused by the presence of iron in the glass-sands, and the strength of the colour depends largely upon the amount of iron present.[439] But because of uncertainties during various stages of his technique, the Roman worker could never be quite sure whether the final colour would be light or dark. Thus, the range of possible tints was very great.[440]

Antiphilus's poem, however, contains four colours which are obviously meant to fall into two contrasting pairs.

ἀλλὰ δέχευ μνιαροῖο βαθυρρήνοιο τάπητος
ἐνδυτὸν εὐανθεῖ πορφύρῃ εἰδόμενον,
εἴρια τε ῥοδόεντα, καὶ ἐς κυανότριχα χαίτην
νάρδον, ὑπὸ γλαυκῆς κλειομένην ὑάλου.

Crimson is balanced by a lighter shade of red, *light-red/pink*; similarly *dark blue* is balanced by γλαυκῆς which must, therefore, in this context mean *light blue.*[441]

Apollonius Rhodius

(i) Date: third century B.C.

(ii) *Argonautica.*

1.182 [Euphemus, son of Poseidon] could skim across the γλαυκοῖο swell of the sea without wetting his feet.

Fragmenta.

12.15 So that she might become the daughter-in-law of γλαυκῆς Thetis.

Aratus

(i) Of Soli in Cilicia. Date: c. 315-240/39 B.C.[442]

(ii) *Phaenomena.*

369 Other stars, of short duration, and endowed with feeble light, roll between the Rudder and the Sea-Monster, scattered under the flanks of the γλαυκοῦ Hare.

Commentary

The constellation *Lepus* is below Orion and is not a particularly bright group of stars.[443] Aratus later described the Hare as χαροπός (594), but here the colour must have changed, because he also described the Moon as χαροποῖο (1152). A late anonymous author had this to say. "Habet autem stellas per singulas aures unam, in corpore duas, in spino unam nitidam, in alterutris pedibus retrorsis unam nitidam. Omnes septem."[444]

It should be said that Aratus's use of γλαυκός and χαροπός in relation to stars must refer to their colour and not to their brightness alone. Since every star is either bright or dim, it would not make sense to use two adjectives whose every employment by other authors indicates colour, only to designate undifferentiated 'brightness'.[445] M. Erren translated γλαυκοῦ as *nachtblauen*,[446] which certainly conveys the colour-sense but is based on a misunderstanding of the picture. If the stars were the same colour as their background they could not be seen at all.[447]

Actually, stars appear to be of very different colours, from white and blue through yellow to orange and red. These colours are indications of star temperatures, the blue and white being the hottest and the red cooler. There is no reason, therefore, for γλαυκός not being here a reference to colour.[448]

ARCHESTRATUS

(i) Of Gela in Sicily. Date: floruit end of the fourth century B.C.

(ii) *Hedypatheia.*

Fr. 28.5 In this city of Torone, you should buy the belly-slices of the dog shark...sprinkle them with cummin-flavoured salt. Do not put anything else on them, my friend, except perhaps γλαυκόν olive-oil.[449]

Fr. 41.7 [Dressing and baking the parrot-fish]. Sprinkle it with cummin-flavoured salt and with γλαυκῷ olive-oil.[450]

Commentary

The normal colour of olive-oil is yellowish-green, and there seems to be little point in its being mentioned in the middle of a straightforward recipe unless it is meant to indicate an *unusual* col-

our or some specific kind of olive-oil. I have already discussed a similar use of γλαυκός[451] as a technical term for new wine made from black grapes,[452] and I suggest that the same technicality is being employed here. Black olives have a distinct glaucous bloom and it would not be surprising if the epithet had been transferred from them to one of the oil-pressings they produced.[453]

Marcus Argentarius

(i) Date: floruit perhaps in the first century A.D.[454]

(ii) *A.G.*

9.87.4 [To a blackbird]. Go where the thickly-shaded vine rises from γλαυκῶν leaves.[455]

Aristophanes

(i) Date: c. 457-c. 385 B.C.

(ii) *Ranae.*

665 Poseidon...who dost rule over the Aegean headlands and in the depths of the γλαυκᾶς sea...

Thesmophoriazusae.

45 Let the γλαυκόν wave of the sea cease its noise.
317 [Invocation to γλαυκῶπι, Athene].

Bacchylides

(i) Date: floruit fifth century B.C.

(ii) *Carmina.*

8.29 O Zeus...thou hast set upon his brow a γλαυκόν wreath of Aetolian olive.
11.29 He would have crowned his hair with a γλαυκᾷ olive for which all comers strive.[456]

Colluthus

(i) Date: fifth century A.D.

(ii) *Raptus Helenae.*

134 [The judgment of Paris]. He looked at the light of their γλαυκῶν eyes, (γλαυκῶν βλεφάρων σέλας).[457]

Dionysius 'Periegetes'

(i) Date: second century A.D.?

(ii) *Orbis Descriptio.*

1119 Others search beside the jutting rocks of mountain torrents for the γλαυκήν beryl.....

1121 ....or a flawless, γλαυκιόωντα topaz.

Commentary

A. [1119] Pliny described several kinds of beryl—those which reproduced "the pure green of the sea", (almost certainly emeralds); chrysoberyls which were a paler green verging upon golden-yellow; chrysoprase, paler still, (not the modern chrysoprase, but perhaps Cat's-eye); sapphire-blue; sky-blue; waxy; beryls the colour of olive-oil, and finally, beryls without colour at all.[458] According to him, the green were most highly prized, a reversal of modern taste which prefers the sky-blue aquamarine.[459] Colour in beryls is caused by traces of iron in their composition and may be there ab origine or produced artificially by heating.[460] Pliny mentioned that Indians had found a way of counterfeiting beryls by staining rock-crystal (*loc. cit.* 79), and it happens that the *Papyrus Holmiensis* has preserved a number of recipes which describe such a process.

Two of these employ a mixture of indigo and rock-crystal, heated in order to assist some absorption of the colour which would be a very pale blue.[461] Another requires the mixing of a certain amount of junk—tortoise bile and the milk of a pregnant animal—with copper and vinegar. The result would probably be precipitation of copper acetate upon the surface of the crystal, resulting in a more or less blue colour.[462] Yet another, somewhat puzzling, requires only the suspension of a crystal above urine in an enclosed vessel for three days, and then slow heating of the liquid. This would not affect the colour in the least, but might pit the surface slightly or clean it through the action of ammonia, in preparation for later staining work.[463]

Diodorus Siculus (2.52) gave an account of emeralds and "so-called beryllia" being found in copper-mines. Translations of this passage have varied widely, showing an imperfect understanding of the chemical processes involved.

(a) "Smaragdes and berall stones, they grow in the mynorales of metalls, and of the bodies above receive their colour and fashion," John Skelton (1472).
(b) "Li smeraldi & berilli tra le minere de metalli si generano pur per forza del sole & celeste," (1526).[464]
(c) "The Emeralds also and Berills growing in the Brasse mines, take their form and colour from heaven," (1653).[465]
(d) "The *Smaragdos* and *Beryl* (as they are call'd) which are found in the Copper-Mines are said to have their Colour from their Mixture with Sulphur," (1700).[466]
(e) "Les émeraudes et les berylles qui se tirent des mines de cuivre, reçoivent leur teinture et leur liaison du souffre qui les pénètre," (1737).
(f) "C'est ainsi[467] que se forment l'émeraude et le béryl, qui se rencontrent dans les veines métalliques des mines de cuivre, et sont colorés par une teinture de soufre liée à leur substance," (1834).
(g) "L'émeraude et le béryl se forment dans les mines de cuivre, et se colorent par l'action de substances sulfureuses tinctoriales," (1865).
(h) "*Smaragdi* and *beryllia*, as they are called, which are found in the shafts of copper mines, receive their colour by having been dipped and bound together in a bath of sulphur," (C. H. Oldfather in the Loeb edition, 1935).

None of these translations manages to reproduce exactly what Diodorus was reporting—and it should be noted that he was proffering second-hand information, λέγουσι, by whom he probably meant Indians or written accounts from which he had taken his facts, not stating a piece of his own scientific knowledge. One should also note that copper is often found in conjunction with sulphur, so there is no question here of a 'bath', implying artificial creation of colours. Both stones are said to take on a similar colour (συγχρώζεσθαι) because they are dyed with sulphurous substances (διὰ τὴν ἀπὸ τῶν θείων βαφήν, which is precisely 'l'action de substances sulfureuses tinctoriales'), and because they are "joined together", (σύνδεσιν), that is to say sulphurous fumes *react* with the beryllia and so bring about a change in colour. Since the stones are described as having the same, or a similar, colour, there can be no doubt that Diodorus's beryllia were green.[468]

At this point, it may be worth noting the etymology of βήρυλλος. E. H. Warmington said it was derived from the Sanskrit *Vaidurya* or *Veluriya*, but gave no further information.[469] *Vaidurya* simply means 'from' or 'produced in Vidura' and is not the parent word of beryl. This is *Veluriya*—which is Pali, not Sanskrit—and means a precious stone, particularly lapis lazuli;[470] hence, a blue rather than a green stone. In this connection, therefore, it is worth noting the poem by Addaeus which describes an Indian beryl cut in the form of Sea-Calm. The implication is that the sea is returning to its natural blue after a storm.[471]

What, then, can one say about Dionysius's stone? The word beryl is derived from another for lapis lazuli; Pliny recorded the existence of light-blue beryls; Epiphanius said it was bluish (γλαυκίζων);[472] Tryphiodorus simply called the stone γλαυκός;[473] *P. Holm.* has two recipes for light blue beryls and one which could produce varying shades of blue. Only Diodorus and Isidore referred to the green beryl alone. In trying to divine Dionysius's meaning, I think one has to ask first, what is the normal sense of γλαυκός in prose, and secondly, is there any reason here for a departure from that meaning? In prose, as we shall see below in Chapter III, γλαυκός means *light blue*, and there is nothing in Dionysius to suggest that any change from that is required. Consequently, the most natural way to understand his phrase is by taking it to refer to the pale blue aquamarine.

B. [1121] I have argued supra 42-5 that γλαυκιάω was a metaphor derived from γλαυκός meaning *light blue*. Although the topaz is usually a yellow stone, there is both a pale blue and a pale green variety, neither being especially rare.[474] I can apply to this passage the same questions I have just asked of the previous, and my answer will be the same. So this is probably a light blue variety of topaz.[475]

EMPEDOCLES

(i) Date: c. 493-c. 453 B.C.

(ii) *Fragmenta.*

374 (B42) As much of the earth is darkened as the breadth of the γλαυκώπιδος Moon can cover.

438 According to Empedocles, γλαυκά eyes are fiery in composition, while μέλανα contain more water than fire.[476]

685 (B93) The berry of γλαυκῆς elder is combined with linen [*or* flax].

Sphaera (pseudo-Empedocles).

143 [The Goat] feeds itself on the green-bearing (χλοηφόρῳ) earth, [the Fish] swims in the γλαυκός-rolling billow.[477]

Commentary

Fr. 685 The most likely meaning is that the berry of the γλαυκῆς elder is used to dye linen cloth. Since there are two kinds of elder, *Sambucus nigra* and *Sambucus racemosa*, I presume that the adjective γλαυκός is used to distinguish one from the other. O. Polunin said that *Sambucus nigra* has greyish-brown branches and grey twigs, so it is probably to this plant that Empedocles was referring.[478] Polunin also tells us that various parts of the plant are used for many purposes, including manufacture of dye. As its name suggests, this elder's fruit is usually black, though white and pink varieties do exist. Juice from this will have been used to colour the cloth.[479]

Eratosthenes

(i) Of Cyrene. Date: c. 275-194 B.C.

(ii) *Fragmenta*.

16.4 The five planetary spheres extend themselves in a circle. Two were κελαινότεραι than γλαυκοῖο κυανοῖο.

Commentary

Three colours are involved—(a) the substance κύανος, which was originally a form of paste or enamel, and later lapis lazuli;[480] (b) γλαυκός, describing the colour of this particular form of κύανος, and (c) κελαινός which is meant to indicate a darker shade than γλαυκός. Theophrastus said that ground κύανος makes two colours, one lighter than the other.[481] Since the darker is the shade of sapphire,[482] the other must be quite a light blue. The lexicographers indicated that γλαυκός was a light shade of κυάνεος,[483] and one may notice that Plato said a mixture of κυάνεος and λευκός produced γλαυκός.[484] Hence, it is likely that γλαυκὸς κύανος here refers to the light blue shade of lapis lazuli.[485]

Euphorio

(i) Of Chalcis in Euboea. Date: born c. 276 B.C.

(ii) *Fragmenta.*

2.2 γλαυκῶπα Pronoia.[486]
150 γλαυκῶπις [olive].

Euripides

(i) Date: c. 485-c. 406 B.C.

(ii) *Cyclops.*

16 λευκαίνοντες the γλαυκήν salt sea with their dashing oars.

Helen.

400 I wander in pain upon the deep swell of the γλαυκῆς expanse of the sea.
1457 γλαυκά daughter of the sea, Galaneia.
1501 Safely guide Helen on the γλαυκόν sea-swell and the κυανόχροα, πολία, dashing waves of the sea.[487]

Heracleidae.

754 Shout triumph...up to the mansion of γλαυκᾶς Athene.

Iphigeneia Taurica.

1101 The sacred branch of γλαυκᾶς olive.

Supplices.

258 Leave here a γλαυκήν, χλόην branch to roof over the altar.[488]

Troades.

802 The γλαυκᾶς olive.

Fragmenta.

1009 The γλαυκῶπις Moon turns round.

Gregory Naziazenus

(i) Date: obiit c. 390 A.D.

(ii) *Carmina.*

1, section 2.28.235-8.[489]

Someone made fun of the owl. She ducked each of the jibes with a well-aimed phrase.
"What a big head you have!"
"As big as Zeus's."
"What γλαυκότης, too!"
"It's the same as [that of] Γλαυκώπιδος!"[490]

Ibid.

28.245.[491]

Γλαυκή, an unpleasant voice, small feet, and a large head—these put to shame the most dearly beloved woman, and she went away.

Christus Patiens (pseudo-Gregory).

1416.[492]

Or to have hidden his body in the γλαυκοῖς waves of the sea...

Hegesianax

(i) Date: second century B.C.

(ii) *Fragmenta.*

1.2 In the middle [of the Moon] can clearly be seen the face of a young girl whose eyes are γλαυκότεραν than κυανοῖο.

Commentary

Plutarch quoted this passage and commentated that the face is caused by light and dark patches merging to form an outline.[493] In my discussion of a similar comparison between γλαυκός and κυάνεος in Eratosthenes, I came to the conclusion that γλαυκός probably meant *light blue*, and the same arguments apply to this fragment of Hegesianax.

Herodas

(i) Date: third century B.C.

(ii) *Mimes.*

6.49 [Two women are discussing two cobblers]. "Which Kerdon? Tell me, because there are two of them. One, Myrtaline's neighbour is γλαυκός."[494]

Hesiod

(i) Date: c. 700 B.C.

(ii) *Theogony.*

13 γλαυκῶπιν Athene.[495]
440 To those whose business is on the rough and stormy γλαυκήν.

Scutum.

430 [A lion]. His κελαινόν heart is filled with rage and [his eye] γλαυκιόων.[496]

Homer

(i) Date: none reliable.

(ii) *Iliad.*

1.206 Then the goddess, γλαυκῶπις Athene, answered him.[497]
16.34 [Patroclus to Achilles]. Nor was Thetis your mother. But the γλαυκή sea bore you.
20.172 [A lion]. Γλαυκιόων he rushes straight on in his fury.[498]

Commentary

16.34 This is the only occasion on which Homer used γλαυκός and, as D. H. F. Gray pointed out, he probably adopted it especially for this context.[499] Patroclus is urging Achilles to rejoin the war. You are without pity, he says. You must be the son, not of a mortal father [Peleus] and a nymph mother [Thetis], but of the γλαυκή sea itself and high cliffs, because you are so stubborn.

Here, the sea becomes a symbol of an element in Achilles's character—dangerous, unpredictable, not to be trusted.[500] Γλαυκός

was chosen to describe it perhaps because Achilles was ξανθός, and ξανθοί people often have γλαυκοί eyes. The blue element appropriately gave birth to a blue-eyed monster.[501]

Hymni Homerici

(i) Date: sixth century B.C.[502]

(ii) *Pythian Apollo.*

3.323 How dared you by yourself give birth to γλαυκῶπιν Athene?[503]

Hymn to Isis

(i) Date: fifth century A.D.?

(ii) 146 I shall shed further light on γλαυκώλενον Tethys.[504]

Ibycus

(i) Of Rhegium. Date: sixth century B.C.

(ii) *Fragmenta.*

7.1 Euryalos, child of the †γλαυκέων† Charites.[505]
22(a) [There is a story about] γλαυκώπιδα Cassandra, Priam's daughter, decked with love-locks.

Limenius

(i) Of Athens. Date: second century B.C.

(ii) *Paean Delphicus.*

ii.6 Blessed Leto gave birth to Apollo near the famous sea, having touched with her hands a flourishing branch of the γλαυκᾶς olive [which is the prize in the games].[506]

Lycophron

(i) Of Chalcis in Euboea. Date: born c. 320 B.C.

(ii) *Alexandra.*

471 [Teucer will be driven into exile], a κελαινόν banquet for a γλαυκῷ dog.

Commentary

The dog is a sea-monster sent by Poseidon.[507] G. W. Mooney's translation, "a grisly banquet for the grey-eyed hound," takes κελαινός as a non-colour term and γλαυκός in its usual manner, referring to the eyes.[508] According to Adamantius, wild animals were supposed to have γλαυκοί eyes,[509] but I suggest that here the imagery is different.

Since γλαυκός was so frequently applied by poets to the sea, and since the dog is a sea-monster, it seems likely that Teucer is to be the victim of a huge wave which, rearing up from the darker blue of the underlying water and flecked with white at its crest, may well be taken as the jaws of a maddened animal seeking to gulp its prey. For the colour sequence, compare Euripides: *Helen* 1501 sq. For the idea of jaws, compare Oppian of Cilicia: *Halieutica* 2.577.

Maccius

(i) Date: perhaps the first century A.D.[510]

(ii) *A.G.*

9.249.1 I am Pan...and I keep watch over this leafy, γλαυκάν climbing vine.

Pseudo-Manetho

(i) Date: uncertain, but probably not before the fifth century A.D.

(ii) *Apotelesmatica.*

5.250 The horned Moon and γλαυκιόωσα Venus cause scurvy, mange, leprosy, and eruptions.

Meleager

(i) From Gadara in Syria. He lived in Tyre, then retired to Cos in his old age. Date: floruit 100 B.C.

(ii) *A.G.*

5.176.5 It is a wonder to me, Cypris, how you, who arose from the γλαυκοῖο wave, brought forth fire from water.

Mesomedes

(i) Date: second century A.D.[511]

(ii) *Hymn to the Sun.*

21 Before the γλαυκά Moon leads forth a seasonable time, dragged forth by λευκῶν calves under the yoke.

Moschus

(i) Date: floruit c. 150 B.C.

(ii) *Carmina.*

2.144 Perhaps you will soar above the γλαυκῆς air.[512]
3.42 [Never so woeful] was the ceryl's song among the γλαυκοῖς waves of the sea.
5.1 (pseudo-Moschus)
When the wind strikes gently upon the γλαυκάν sea.

Nicander

(i) Date: floruit mid second century B.C.

(ii) *Theriaca.*

680 [The heliotrope] which, like the γλαυκοῖσιν leaves of the olive, marks the path of the retreating scion of Hyperion.

Commentary

The Scholiast explained that during the summer, the olive has the γλαυκά side of its leaves uppermost, but the μέλανα during the winter. Thus one may tell the change of the seasons. His information may have been derived from Porphyrius, *De Antro Nympharum* 33.

Nonnos

(i) Date: fifth century A.D.

(ii) *Dionysiaca.*

1.105 If it is wheat-haired Demeter cleaving the γλαυκά back of the sea with waterfaring oxhoof, [then Poseidon must have turned landsman].

1.246 [Ophiuchos] shook off the γλαυκά backs of the fire-bred serpents.

1.469 γλαυκῶπις Athene.[513]

2.14 He no longer λεύκαινεν the γλαυκόν water with his oars.[514]

2.45 γλαυκά bodies of chest-bristling lions.

3.98 There, some bird, perched under the delicate, γλαυκωπόν shade of an olive tree...

5.70 γλαυκώπιδι Mene [the Moon].

5.168 The γλαυκόν swell of the Red Sea.

5.178 The χλοάουσα of the γλαυκῆς emerald.

7.249 I see the γλαυκά gleam of [Semele's] calm eyelids.

12.112 [Zeus gave] the γλαυκόν shoot of the olive to γλαυκώπιδι Athene.

14.84 Glaucus, γλαυκιόων, the same colour as the sea.[515]

15.61 He sucked at a γλαυκόν shoot of the olive.

15.185 She whipped the γλαυκά backs of shaggy-breasted lions.

20.353 He plunged into the γλαυκόν wave of the Red Sea.

22.72 [The Indian army] would have plucked....a γλαυκόχροα shoot of olive.

27.108 Bring to Deriades the γλαυκά harness of [Telchines's] fine-wrought chariot.

42.141 Where are the γλαυκά, snaky bonds of earthfed serpents in your hair?

43.265 Terrible Panopeia, darting along through the calm, whipped the γλαυκά back of a sea-lioness.

Commentary

A. [1.246].

Here, both Ophiuchos and Typhaon are heavenly bodies. The most obvious natural phenomenon to give rise to the picture of Typhaon is a comet, whose long trails of smoky vapour might look like serpents. Γλαυκά may refer to these. On the other hand, reports about comets of different colours—pale blue among them—are quite common, and it is possible that Nonnos's Typhaon was one of these. See P. L. Brown, who treats such reports with suspicion, though he does point out that "various meteorological effects can easily influence the colour of a comet."[516]

B. [2.45].

Lions' bodies are usually tawny. Nonnos's adjective is probably a reminiscence of the γλαυκιόων, quite often applied to lions' eyes. Homer: *Iliad* 20.172; Hesiod: *Scutum* 430-1. Compare Oppian of Syria: *Cynegetica* 3.70-1, etc. The epithet is transferred, in somewhat strained fashion, to the whole body. Compare *Dionysiaca* 11.65, and my comments infra.

C. [5.178].

This is part of the description of Harmonia's necklace, a double-headed snake supporting an eagle with outstretched wings and legs. In order to illustrate the pattern of colour which Nonnos has created it will be necessary to quote the whole passage.

τῇ μὲν ξανθὸς ἴασπις ἐπέτρεχε, τῇ δὲ Σελήνης
εἶχε λίθον πάνλευκον, ὃς εὐκεράοιο θεαίνης
λειπομένης μινύθει καὶ ἀέξεται, ὁππότε Μήνη
ἀρτιφαὴς σέλας ὑγρὸν ἀποστίλβουσα κεραίης
'Ηελίου γενετῆρος ἀμέλγεται αὐτόγονον πῦρ·
ἄλλη †μάργαρον εἶχε φαεσφόρον, οὗ χάριν αἴγλης
γλαυκὸν 'Ερυθραίης ἀμαρύσσεται οἶδμα θαλάσσης
λαμπομένης· ἑτέρης δὲ μεσόμφαλος αἴθοπι κόσμῳ
λεπτοφαὴς σέλας ὑγρὸν ἀπέπτυεν 'Ινδὸς ἀχάτης.
ἀλλήλαις δ' ἑκάτερθε συναπτομένων κεφαλάων
χάσματα δισσὰ δράκοντος ἀνευρύνοντο καρήνων,
αἰετὸν ἀμφοτέροισι περικλείοντα γενείοις
σύμπλοκον ἔνθα καὶ ἔνθα· δι' εὐφαέος δὲ προσώπου
λυχνίδες ἠκόντιζον ἐν ὄμμασι σύμφυτον αἴγλην
ὀξύ σέλας πέμπουσαν, ὁμοίιον αἴθοπι λύχνῳ
ἁπτομένῳ· κομόων δὲ λίθων πολυειδέι μορφῇ
πόντος ἔην, γλαυκῆς δὲ λίθος χλοάουσα μαράγδου
δεξαμένη κρύσταλλον ὁμόζυγον εἴκελον ἀφρῷ
εἶχε φαληριόωντα μελαινομένης τύπον ἅλμης·
τῷ ἔνι δαίδαλα πάντα τετεύχατο, τῷ ἔνι πάντα
χρυσοφαῆ μάρμαιρεν ἁλίτροφα πώεα λίμνης,
οἷα περισκαίροντα·

(162-183).

The pattern is formed thus:

Yellow ἴασπις[517]	(162)	Flame-coloured λυχνίδες[519]	(175)
White selenite	(163)	γλαυκός stone to represent the sea	(178)
γλαυκός sea	(168)	White crystal	(179)
Tawny-yellow ἀχάτης[518]	(170)	Gold	(182)

Clear though this pattern is, however, there are two puzzles, both in verse 178. Why is the emerald called γλαυκός, and where is the corresponding colour for χλοάουσα in the earlier half of the description?

Both questions can be answered together. Verse 167 reads μάργαρον, *pearl*, adopted by W. H. D. Rouse in his Loeb edition (1940) in preference to μάρμαρον[520], *topaz*, suggested by the Comte de Marcellus in 1856. The green topaz described by Pliny was almost certainly the modern *peridot*, and in eodem loco Pliny also quoted Juba to the effect that, "Topazos is the name of an island situated in the Red Sea."[521] Here, then, we have the link between a green stone and the blue swell of the Red Sea gleaming with a distinctive colour difficult to describe with a single adjective.[522] This makes a simple, vivid picture in verses 167-8 but is not easy to parallel later on, and indeed the only way Nonnos could manage to reproduce the idea in verse 178 was by joining χλόος with γλαυκός, thus manufacturing, at the cost of some violence to sense, a greenish-blue stone which represents the sea.[523]

D. [7.249].

In Nonnos, βλέφαρα usually refers to the eyes. There are ambiguous examples when tears fall from the eyes/eyelids (5.413, 449; 6.244; 11.464; cf. 48.701 and 2.154, dropping amber), but only eyes can gaze (48.342; cf. 15.21) or turn to look, (37.298) or be furtive, (48.147; cf. 15.408, the grim look of a lion). So flaming eyelids (18.261; cf. 8.341, flashing) or gleaming eyelids (4.8, 26, 213; 35.172; cf. 7.260, of a cow's eyes) must be descriptive of the eyes themselves, not simply of their lids.

When applied to parts of the body, in particular, ἀμαρύσσεσθαι implies colour—for example, the silver-white gleam of a woman's

flesh (33.31) or of a man's (4.131);[523a] Beroe's neck, brighter than amber (42.423),[523b] or Ismenos, gleaming under lightning-fire (8.374).[524] As for the calm, γαλήνη was particularly a calm at sea—one may compare with this picture that of Addaeus describing a beryl, probably an aquamarine, carved in the shape of Γαλήνη herself[525]—implying a light blue, an implication reinforced by the deliberate reference to Athene γλαυκῶπις which follows soon after (251). One may take it, then, that as βλέφαρα refers to Semele's eyes, so the adjective modifying it describes her eyes also.[526]

E. [43.265].

The pelage of the Northern sea-lion is often black with a bluish tinge to it. The effect can be seen in a colour-photograph in the *Encyclopaedia Britannica* 15th ed., Micropaedia IX s.v. This shows a large group of black sea-lions with a light blue gleam to their coats, matching the colour of the sea in the background. Uncertainties of colour-photography apart, this phenomenon is easily observable upon most very black hair, especially accentuated when the hair or pelt is wet. The effect is not just one of gleaming but one in which a definite tinge of colour is present in the surface-shine. Compare κυανέα of the swallow, Simonides, fr. 92 (Page).

Addendum on 11.65.

†γλαυκὰ †φιλοσκοπέλων ἐπεδείκνυε παίγνια θηρῶν.

Γλαυκά is the reading of L, and was printed in 1569 and 1605. But most editors since have printed Gräfe's γαῦρα which is not very satisfactory. G. Giangrande has argued that γλαυκά should stand, partly because it will make sense if one translates it as *gleaming*, partly because it is a satisfactory example of adjectival enallage—"the παίγνια were γλαυκά because performed on the backs of animals whose coats were γλαυκά."[527]

I think Giangrande may be right, but in spite of his first reason, not because of it. From the earliest times, as I shall make clear in Chapter III, γλαυκός was a colour-term, not simply a word with vague reference to gleam or shine, and by Nonnos's day there can be no doubt at all that the adjective bore a strong and unmistakeable colour-sense. So it it is not the leopards' coats which are γλαυκά but their eyes. Compare 2.45, γλαυκὰ δασυστέρνων ἐλαφύσσετο γυῖα λεόντων, to which the same objections and the same solution are applicable.

Addendum: two curious translations

In 1605, Eilhart Lubin published a text and Latin version of the *Dionysiaca*, and the Comte de Marcellus a text and French rendition in 1856. It is interesting to note how both authors have used a variety of adjectives in order to make simple prosaic sense of many difficult passages, quite without scruple or true poetic judgment. Their well-meant surrender to banalisation may serve as a warning to us all.

1605.

1.105	cerulea.
1.246	(not translated).
1.469	caeruleis oculis.
2.14	caeruleum.
2.45	cerulea.
3.98	viridi.
5.168	caeruleus.
5.178	caeruleae, (having translated χλοάουσα as viridis).
7.249	cerulea.
7.251	caesios oculos.
12.112	ceruleum...ceruleos oculos.
14.84	glaucis oculis.
15.61	caeruleum.
15.185	fulva.
20.353	flavum.
22.72	viridis coloris.
27.108	caeruleis.
42.141	flava.
43.265	cerulea.

For 11.65, Lubin printed γλαυκά and translated it as cerulea.

1856.

1.105	azuré.
1.246	azurés.
1.469	ses yeux bleus.
2.14	azurée.
2.45	béantes.
3.98	jeune.
5.70	aux yeux d'azur.

5.168 azurés.
5.178 la verte émeraude, enchassée dans un cristal qui imite l'écume, reproduit les nuances foncées de la mer bouillonnante.
7.249 azur.
7.251 aux yeux bleus.
12.112 azuré.
14.84 Glaucos, dont les membres d'un bleu d'azur reproduisaient la glauque nuance de la mer.
15.61 reverdis.
15.185 jaune.
20.353 azurés.
22.72 vert.
27.108 azurés.
42.141 verdâtres.
43.265 verdâtre.

For 11.65, the Comte printed

γλαυκὰ φιλοσκοπέλων ἐπεδείκνυε ποίμνια θηρῶν,

and translated it as,

il lui indique les vertes retraites des hôtes des forêts.

Numenius

(i) Date: third century B.C.

(ii) *Halieutica.*

Fr. 5.3 [A list of fish]. Or mussels, or horse-fish, or γλαυκήν young tunny.

Commentary

Tunny are dark blue on top and light blue underneath. D'Arcy Thompson, *Greek Fishes* s.v. πηλαμύς did not mention their colour, but see M. & R. Burton (edd.): *Encyclopaedia of Fish*, 242-3.[528]

Oppian of Cilicia

(i) Date: second or third century A.D.

(ii) *Halieutica.*

1.791 Then the whole of γλαυκή Amphitrite[529] λευκαίνεται.

2.577 [Fish called Amia, enemies of the dolphin, attack him. Some seize his head], others his γλαυκῶν jaws.[530]

4.269 The Poulpes [fish] indeed love the trees of Athene and have sucked in a desire for the γλαυκοῖσιν shoots.[531]

4.444 In the γλαυκοῖς depths of the sea.[532]

5.107 [A whale, caught by hook and bait, wanders helplessly], wherever the γλαυκόν water carries him.[533]

5.271 [On the death of a whale]. The γλαυκή brine ἐρυθαίνεται.[534]

Commentary

[2.577].

It is not altogether clear whether the dolphin of antiquity was *Delphinus delphis* (the Common Dolphin) or *Tursiops truncatus* (the Bottle-nosed Dolphin),[535] and indeed dolphins can be very variable in colour, so much so that textbooks differ widely in their descriptions—brilliant green or blue above, shading to silvery white below;[536] black or dark brown on the back, white underneath;[537] upper parts and tails purplish grey, fading to white on the underside.[538]

The most common impression a viewer has, however, is of a dark blue back and white underside meeting near the jawline in a distinctive light blue stripe. It is almost certainly this underside which the Amia have seized.[539]

Oppian of Syria

(i) Date: third century A.D.

(ii) *Cynegetica.*

1.308 [You should pit] γλαυκούς horses against bears.[540]

3.70-1 [Leopards]. Their eye is bright (φαεινόν).[541] The pupils γλαυκιόωσιν, glittering under their brows, γλαυκιόωσιν and at the same time φοινίσσονται[542] within, aflame as though they were on fire.[543]

4.311 [Dionysus] gave the [Bacchantes] the γλαυκιόωσαν eye of a wild beast.[544]

Oracle

(i) Date: probably third century A.D.

(ii) Apud Achilles Tatius.

2.14 There [in Tyre] Hephaestus enjoys the possession of γλαυκῶπιν Athene.[545]

Oracula Sibyllina

(i) Date: opinions are divided. The quotations which follow may belong to the third century A.D.[546]

(ii)

1.11 He raised heaven on high and spread out the γλαυκήν sea.[547]

2.198 [Then a great river of shining fire...will destroy] earth, the great ocean, and the γλαυκήν sea.

6.5 [Jesus being baptised in the Jordan]. He was set free at the mouth of the River Jordan which was brought there by its γλαυκῷ foot, trailing its waves along.

7.5 Cyprus, a wave of the γλαυκῆς sea will completely destroy you.[548]

Apud Phlegon Trallianum: *Memorabilia.*

10 [A γλαυκῆς olive-tree with much fruit].

Orphica

(i) Date: fourth century A.D.?[549]

(ii) *Argonautica.*

492 Tiphys...and the other Minyans raised on high a heavy stone for γλαυκώπιδι Tritogeneia.[550]

694 But, at Hera's suggestion, γλαυκῶπις Athene sent a heron to set the high sail-yard flying.

1247 We struck the γλαυκήν brine with our oars early in the morning.[551]

Hymni.

22.1 I invoke Ocean's bride, γλαυκώπιδα Tethys.

32.14 [A series of epithets for Athene]. Tritogeneia, deliverer from evils, victory-bearing spirit, γλαυκῶφ'.

Lithica.

586 But they invoke γλαυκήν Tritogeneia, strife-stirring, fearless.

Fragmenta.

218 Nine, flower-creating, γλαυκώπιδας daughters.

Parthenius

(i) Of Nicaea. Date: first century B.C.

(ii) *Narrationes Amatoriae.*

21.15 So that she might become the daughter-in-law of γλαυκῆς Thetis.

Phanocles

(i) Date: third century B.C.?

(ii) *Fragmenta.*

1.14 So that they might both be borne on the sea at the same time, washed by the γλαυκοῖς waves.

Philippus

(i) Date: first century A.D.

(ii) *A.G.*

6.103.7 Leontichus gave to thee, γλαυκῶπι Lady,[552] his taut plumb-line weighted with lead.

Philodemus

(i) Of Gadara. Date: first century A.D.

(ii) *A.G.*

6.349 Leucothea, thou γλαυκή ruler of the sea.

Phoenix

(i) Of Colophon. Date: third century B.C.?

(ii) Apud *P. Heid.* 310.

IV.132 [Description of a paederast]. γλ[α]υκὸς, μελάγ[χ]ρη[ς.[553]

Pindar

(i) Date: 518-438 B.C.

(ii) *Olympian.*

3.13 [The umpire places on Theron's head] the γλαυκόχροα adornment of the olive.[554]

6.45 Two γλαυκῶπες serpents, by the will of the gods, tended him.

7.51 Γλαυκῶπις herself bestowed upon them [Rhodian metal-workers] every art.[555]

8.37 Three γλαυκοί serpents tried to leap into the tower.[556]

Pythian.

4.249 Jason, by his cunning, killed the γλαυκῶπα snake.

Nemean.

7.96 O blessed [Heracles], it is your part to persuade the consort of Hera, and the Γλαυκώπιδα maiden.

10.7 Once, ξανθὰ Γλαυκῶπις made Diomedes an immortal god.

Pisander

(i) Of Camiros on Rhodes. Date: Uncertain, perhaps Hellenistic.[557]

(ii) *Heraclea.*

Fr. 7. Γλαυκῶπις Athene made hot water spring up by the sea at Thermopylae so that Heracles could bathe.

Quintus Smyrnaeus

(i) Date: fourth century A.D.?

(ii) *Ilias.*

7.488 [Lions] γλαυκιόωντες with their eyes pace to and fro.

12.408 [Laocöon in terror]. Now his eyes appeared flecked with much blood, now γλαυκιόωντες in deadly fashion.[558]

Sophocles

(i) Date: 496-406 B.C.

(ii) *Oedipus Coloneus.*

701 The leaf of the γλαυκᾶς olive which feeds our children.

705 γλαυκῶπις Athene watches over it.

Trachiniae.

703 Clotted foam boils up, as when the rich juice of the γλαυκῆς fruit from the vine of Bacchus is spilt upon the ground.[559]

Fragmenta.

342 Poseidon...who dost reign over the depths of the γλαυκᾶς sea.

435 O that I might be an eagle flying...over the swell of the γλαυκᾶς sea.

Commentary

[*Trachiniae* 703].

The most interesting discussion of this passage was made by A. Platt.[560] He pointed out the remarkable similarity between certain passages in Galen and this description by Sophocles of the working of poison. He suggested that the action is very like that which would be produced by sulphuric acid.

"Sulphuric acid in some form was well known to the Egyptians and the Greeks...By some amazing blunder, it seems, this was at some very early date confused with black bile, many mixtures of sulphuric acid and other substances being black."[561]

I add to this my own observation that γλαυκός may have been a technical term to describe new wine made from black, as opposed to white, grapes.[562] Hence the possibility, first of a colour-reference to the blue bloom on black grapes, secondly of a pun between γλαυκῆς and γλεῦκος, as Jebb hinted.

Theocritus

(i) Date: c. 300-c. 260 B.C.

(ii) *Carmina.*

7.59 The halcyons, birds most dear to the γλαυκαῖς Nereids.

11.43 Leave the γλαυκάν sea to beat on the shore.

16.5 Who, of all those who dwell beneath the γλαυκάν dawn, will gladly receive our Graces into his house?[563]

21.55 [A golden fish], a treasure of γλαυκᾶς Amphitrite.

28.1 Distaff, friend of spinners, gift of γλαυκᾶς Athene.

20.25 (pseudo-Theocritus) My eyes were χαροπώτερα than γλαυκᾶς Athene.[564]

Tryphiodorus

(i) Of Egypt. Date: third or fourth century A.D.

(ii) *Ilias.*

70-2 [The wooden horse, made by Epeius]. In two circles he set the eyes of γλαυκῆς beryl[565] and αἱμαλέης amethyst.[566] The eyes φοινίσσοντο and were ringed with γλαυκῶν gemstones.

184 Then they prayed to the γλαυκώπιδι daughter of Zeus.

218 [The Greeks sailed away], ploughing the γλαυκόν water of the Hellespont.

514 As when the Moon, full of γλαυκοῖο fire, gilds with her face the gleaming sky.

566 On the Acropolis, γλαυκῶπις Athene spoke.

Commentary

[514]

The Moon was called γλαυκῶπις by poets—Empedocles fr. 374, Euripides fr. 1009, Hegesianax fr. 1.2, Mesomedes: *Hymn to the Sun* 21, Nonnos: *Dionysiaca* 5.70—and I have suggested that this referred to the bluish-grey tinge of its features, particularly when seen in daylight.[567] Certainly the adjective never refers to yellow.

But Tryphiodorus was making a rather forced play on words between Ἑλένη/χρυσέην πεύκην and πυρός ... σελήνη. As a conventional poetic adjective for the Moon was γλαυκή, so the fire of the Moon also had to be called γλαυκοῖο. There is no need to pursue further the slight oddity of the picture. Apposite here is an observation by S. Fogelmark.

"Ancient Greek is extraordinarily rich in poetic idiosyncracies and we should always take into consideration linguistic complications like cross-associations, mixed metaphors, the intertwining of sensations, sound associations like rhyme and alliteration, and questions of etymology and semantics."[568]

Addendum

In his very loose edition of 1739, J. Merrick took γλαυκοῖο to mean *bright*, and quoted the familiar etymology from γλαύσσω. This loses the verbal effect of 'gilding with blue fire' which is more in Tryphiodorus's style. Even the full yellow Moon shows dark

patches on her face. It is to these that γλαυκοῖο refers. 'Bright fire', besides being tame, misses the contrast. It is ironic to find that in his translation, if that is the right word for what is virtually an original poem, Merrick rendered γλαυκῶπις (which does not appear in the text), as a colour-term.

'Nor ask Lucina's hand to ease the throes,
Or help the fatal birth; the blue-eyed Maid
Who formed the structure, shall the labour aid.'
(501-3).

Tyrtaeus

(i) Date: seventh century B.C.

(ii) *Eunomia.*

Fr. 2.16 γλαυκώπ[ι]δος.

"We have subdued the people with the help of Athene."[569]

Xenophanes

(i) Date: c. 570-c. 478 B.C.

(ii) *Fragmenta.*

14 The Aethiopians [say that their gods] are snub-nosed and μέλανας, the Thracians, that theirs are γλαυκούς and πυρρούς.[570]

CHAPTER THREE

ΓΛΑΥΚΟΣ: USAGE AND MEANING

Any discussion which attempts to define the meaning and usage of γλαυκός and its compounds must take into account both how scarce is the evidence and how diverse its temporal and geographical locations. It is almost entirely by chance that fragments of many authors' work have been preserved at all, and in consequence one has no idea whether the remaining example of a writer's use of γλαυκός was the only one in his entire corpus or whether it represents what he normally understood by the term. Was his observation of fact accurate or slovenly, and if the latter, was he always so undependable or does this example contain an uncharacteristic lapse? Does he describe from direct knowledge or quote from a book, and if he quotes, was his source reliable? Did γλαυκός mean much the same to an Athenian of the fifth century B.C. as it did to a Christianised Jew of Byzantium nearly a thousand years later? If a writer's usage is uncharacteristic of that established elsewhere and at other times, is this because his knowledge of Greek is at fault, or because his verbal inventiveness has burst the bounds of normal linguistic restraint in search of a more accurate or more striking description, or because the word has developed associations in his time and place which render it a local, not a universal, usage?

Such considerations, familiar enough to anyone who tries to pin down the elusive nuances of a dead vocabulary, make the task of elucidating γλαυκός difficult, although fortunately, enough evidence survives to save it from being intractable. I have argued already[1] that failure to distinguish between prose and verse usage has, if not created at least exacerbated, many of the difficulties encountered by previous commentators. It may be argued that many examples of poetic usage are as 'factual' as those in prose, and that to exclude these from consideration creates an artificial and unnecessary barrier between the two. Method, however, there must be in any discussion, and it seems to me self-evident that poetry is much more susceptible to the vagaries of individualism, even in an age of rhetoric, than prose. If one can establish for prosaic γλαυκός a com-

mon meaning which has survived peculiarities both of time and geography, then one may examine the word in verse, reasonably secure in the conviction that when verse-usage coincides with that of prose, there is nothing to explain, but when it diverges, one or other stands in need of further examination.

(a) *Historical development of its usage in prose*

In the following chronological survey of γλαυκός, I shall put aside, for the moment, consideration of Linear B *karauko*, since this will illuminate the meaning rather than the history of the word,[2] and begin with the fifth century B.C.

Herodotus and contributors to the Hippocratic Corpus were thus the earliest remaining prose writers to use γλαυκός, and in both cases they used it of human eyes—Herodotus to describe those of foreigners, perhaps from South Russia, (a usage anticipated by Xenophanes on the Thracians), and Hippocrates of eyes which were diseased, or sufficiently unusual to warrant remark.[3] Ctesias is the first prose-writer we have to employ γλαυκός to describe an animal's eyes, but his usage was either inaccurate, since he was probably writing about the tiger, or based upon a curious poetic image initially belonging to Homer.[4] Since Ctesias had obviously never seen a tiger, his description must have been based on garbled travellers' tales or, more likely, derived from one account or another whose verity should not have been trusted.

At the end of the century, both Plato and Xenophon described animals' eyes as γλαυκοί—the former those of a horse, the latter those of hares or rabbits. Plato's account, it should be noted, is of an *imaginary* horse, even though the idea for it may have been sparked by the famous bronze statues at Olympia, and his colours are meant to be symbolic rather than factually descriptive. Herodotus and Hippocrates used γλαυκός of strange or diseased eyes in contexts which were meant to do no more than describe what could be seen in real life, and it may be that Xenophon's slightly curious application of γλαυκός to the eyes of hares or rabbits came from close observation of a high prevalence of disease among them. These connotations of abnormality, therefore, lend themselves to being transferred from physical to moral or spiritual disability—even offensiveness—and Plato's usage encompasses them all.

In the fourth century, the most important writer is Aristotle. His usage is devoted mainly to general remarks about the eyes of men, animals, and the young of both. As far as he was concerned, γλαυκός indicated a weakness of vision—understandable in a way since, if the majority of Greeks had dark eyes[5] and associated γλαυκοί eyes with disease, it would follow that a lighter pigment should imply at least diminution of the ability to see, just as glaucomatous or cataracted eyes indicated failing or inadequate sight.

I have suggested that Aristotle's use of γλαυκός to describe the eyes of newly-born children was probably based upon observation of a restricted number of Northerners at one particular period of his life, perhaps when the question occurred to him and he took the trouble to look.[6] The reason for this phenomenon he understood, once again, to be weakness caused by a deficiency in water, an odd idea perhaps connected with his observation that shallow sea-water appears to be γλαυκός whereas deeper takes on a more intense shade of the same colour, to become κυανοειδής.

The dates of pseudo-Aristotle, (or the pseudo-Aristotles, since it is quite likely that *Physiognomica* and *De Plantis* were not written by the same person), are unknown. One usage implies that cowards have γλαυκοί eyes, an extension into symbolism already made by Plato: the other is a remarkably acute perception of the way in which temperature affects the appearance of plants. This last is particularly interesting, as it shows at least one Greek sensible of very slight colour-changes in Nature, and it is unlikely that such a man would be slovenly in his use of language to describe those changes. If γλαυκός did not fulfil his need, then one may reasonably speculate that he would have coined a phrase or invented a term in order to supply it, just as Aristophanes fabricated βατράχειος[7] or (another) pseudo-Aristotle made λευκόπυρρος.[8] Γλαυκός, therefore, was what he meant, so γλαυκός was what he used.

An inscription dating from this century refers to a dress dyed γλαυκός, probably with indigo, since there are other examples from the fourth century A.D. of γλαυκός being used to describe such a process. Dyeing methods in the ancient world always gave somewhat uncertain results, and the dyeing agent in indigo is so weak that several dippings are likely to have been required for anything deeper than a very light blue. Cleitarchus described a bird, (the Catreus—probably a conflation of two different birds), with 'γλαυκός-eyed' head-feathers. Since he, like Ctesias, had ob-

viously not seen the creature he was describing, it is impossible to know whether or not he had accurately copied or reported those details of the bird about which he had heard or read. The Greeks were capable of combining a high degree of accuracy with an equally high degree of silliness, especially when it came to ornithology, and this makes any attempt to unravel their accounts of birds somewhat difficult.[9]

It is not until one reaches the beginning of the third century B.C. that one finds γλαυκός specifically referring to owls, though some of Aristotle's descriptions of weak eyes probably had these birds in view. Callimachus said that the Horned Owls were γλαυκοί, a remark one automatically takes to refer to the colour of their eyes. Since all owls, with the exception of the Tawny Owl, have yellow or amber eyes, one is left to conclude either that γλαυκός here means *yellow* when everywhere else it means *light blue*, or that γλαυκός refers to the birds' plumage and not their eyes. As the Scops Owl has lead-coloured feathers, accurately so described by Alexander of Myndos,[10] it is more likely that γλαυκός refers to these than that the word suddenly and so violently changed its regular meaning, and Alexander's reference to lead explains how a faint bluish tinge could be associated with the dull grey of the plumage.

Hippocrates had extended the adjective into a verb, γλαυκόομαι, and Aristeas now refined it into ἀπογλαυκόομαι, perhaps to indicate the departure from colour into the dull white of complete blindness. In his case, therefore, whatever the practice of later authors, the term should be distinguished from γλαυκόομαι since that implies change or gain of colour whereas Aristeas's implies draining or blanchissement, and has nothing to do with glaucoma or cataract.

Two papyri, *P. Petrie* and *P. Cairo. Zen.*, repeat previous usage, the first referring γλαυκός to the eyes of Northerners, this time from Illyria, the latter to a young boy's eyes[11] and, in an ambiguous fashion, to a horse. Although it would be natural to assume that γλαυκός referred to the horse's eyes, one must bear in mind that horses do not usually have blue eyes, though they can be bred for them and be highly prized accordingly, as Welsh ponies were, and it is quite possible the adjective described his coat instead. A steel-grey horse would not be particularly common and one does have the precedent of Callimachus's using γλαυκός of 'coat' rather than eye.[12]

Agatharcides, writing from hearsay or from other published sources which proved to be quite accurate, used γλαύκωμα of what was probably senile cataract exacerbated by Vitamin B deficiency, but did not add anything further to our understanding of the colour-term. A second century B.C. inscription from the island of Imbros, on the other hand, may well have recorded an unusual word, γλαυκάνεα, for objects made of bronze which had developed a γλαυκός patina. Such a colour is by no means uncommon and was noted again, this time at Delphi, by Plutarch.

In the first centuries B.C. and A.D., principally during the latter, there is more evidence of γλαυκός in prose, much of the usage being new and enlightening. Diodorus Siculus explained that Athene was called Γλαυκῶπις, not because she had γλαυκοί eyes, but because she was to be identified with the air which was ἔγγλαυκος. This is interesting, partly because Diodorus was the only writer to use ἔγγλαυκος, so it may have been a coinage of his own,[13] partly because he recorded the common opinion of the Greeks that γλαυκῶπις implied γλαυκοί, that is coloured, eyes. Strabo was the first writer to employ γλαυκίζω and he, too, may have 'invented' it for the occasion, since he had the difficult task of conveying as accurately as possible the curious, streaked appearance of bardiglio marble from the Carrara quarries.

Perhaps the most diverse user of γλαυκός in the first century A.D. was Cornutus. He was the first prose-writer to describe olive-leaves as γλαυκά, though the application had been common in verse for some time,[14] and deliberately drew attention to the theory that they were so called because of their resemblance to the pale milky-blue of the sky, a picture whose accuracy can be vouched for by anyone who has seen from a distance the massed undersides of the leaves in an olive-grove, lifted by the passing wind. He also repeated Diodorus's argument that Athene's eyes were γλαυκοί because the air was γλαυκός, and underlined the point by linking the blue of the air with the colour of flowers which may be Spiny Cocklebars or Annual Bellflowers, the first of which has highly glaucous leaves, the second, pale blue flowers.

Moreover, he linked the owl (γλαύξ) with the notion of γλαυκῶπις, obviously intending that one's attention be drawn to the pun between γλαύξ and γλαυκός. I have already described the ramifications of this jeu de mots,[15] but it may be worthwhile to state them again succinctly.

(a) Γλαυκός is a colour-term meaning light blue.
(b) When seen by day, the Moon appears to be pale grey with light blue patches breaking its disk.
(c) This may remind the observer of an eye glaucomatous or cataracted.
(d) The similarity in sound between γλαυκός and γλαύξ, suggesting an etymological link—spurious though it be—may stimulate the fancy that the Moon's eye, unable to see clearly in daylight, has something in common with the owl's eye since that, too, is glazed and dull under the sun.
(e) Moreover, since the owl will keep its nictitating membrane drawn in order to shield its eye from the full glare of the sun, and as this is likely to give the eye a dull, bluish appearance, the fancy becomes more than verbal, rooted as it is in particular observation of Nature.
(f) Hence the term γλαυκῶπις applied to the Moon.[16]
(g) Hence, too, γλαυκῶπις applied to Athene, since the owl was closely associated with her and since, as we learn from Diodorus Siculus and Pausanias, her statues were frequently made with light blue eyes.

Dioscorides, apart from references to human eyes and diseases of the eye he called ἀπογλαυκώσεις, not necessarily cataracts, used γλαυκός to describe the crushed interior of a ripe mustard-stem. Two colours are involved; χλωρός, which refers to the stem itself, and γλαυκός which describes the iridescent surface of the milky juice lying upon the χλωρός underneath. This is the nearest γλαυκός ever comes to the colour green and even so, Dioscorides's usage is likely to have been prompted by memory of the glaucous underside of olive-leaves or of other plants. He was trying to be very precise in his instructions for the preparation of a mustard-plant recipe, and took care to distinguish between χλωρός and γλαυκός. Any attempt to render the phrase by "the inside will be green, juicy, and greenish" will thus prove meaningless.

In his description of the offshoots of 'Greater Celandine' and the leaves of Hierobotane, too, Dioscorides was careful to employ a compound-adjective, ὑπόγλαυκος, in order to convey sense of an exact shade to his readers. He seems to have been one of the first writers to use the word, though it would be unwise to claim that he himself had invented it, as Dorotheus Sidonius also used it, to

describe the eyes of thieves born under Scorpio. The prefix gives more or less the equivalent meaning of 'dull' to the adjective and, as I have already surmised,[17] he may have been describing the Horned Poppy, rather than Greater Celandine, and the leaves of Vervain, which do have a faint bluish tinge.

Other writers of the same period, Dorotheus, Demosthenes Ophthalmicus, Josephus, used γλαυκός of the human eye, whether whole or diseased, and indeed Demosthenes went into some detail about the various possible colours of cataracts, all of which appear to be varying shades of blue.[18]

During the second century A.D., the application of γλαυκός was further extended. Most writers still used it of human eyes, both healthy and morbid,[19] and this continued to be the most immediate and normal association of the word. Plutarch, however, revived[20] its use for the patina to be seen on certain bronze statues, appropriately enough of sea-captains, at Delphi, and, for the first time in prose, oddly enough, applied it to the sea, though this had long been a favourite adjective of the poets.[21] Here, he mentioned that γλαυκός had been one of Homer's epithets for the sea, and used it himself in an extended metaphor in which the Milky Way is likened to boiling foam caused by rivers of fire emptying into the sea.

In this picture, γλαυκότης should refer to dark rather than light blue since we are to envisage the sky at night, not the pale blue of daylight hours. But as the predominant image is that of the sea, not of the sky, it may be that Plutarch was thinking of the light blue of water near the shore or rocks where the waves are broken into white foam, and transferred this concept to the sky without worrying very much about the lack of exact correspondence of detail.

Plutarch had his own explanation of Empedocles's term for the Moon, γλαυκῶπις. He said that it arose from the combination of bluish hue on the yellow/amber disk which is caused by an eclipse at dawn. It was my suggestion that this idea was born from observation of a bird's nictitating membrane,[22] and it is interesting that several writers made use of the pun γλαύξ – γλαυκός to make a joke, sometimes at Athene's expense.[23] He also used the word of dyed garments and the light of a star, thus indicating that he was quite aware of the colours of different heavenly bodies.[24]

Philostratus, too, used γλαυκός not only of human eyes, but of sea creatures,[25] the sea itself and its nymphs, and the timbers of a pirate ship, painted blue as camouflage in order to help it sneak up on the

unwary. A number of these terms refers to colours in paintings,[26] but not so his curious calling the sky, viewed by an observer from a mountain-top, γλαυκότερος. This should, of course, be the night-sky but I think the context may indicate that Philostratus—or Apollonius who is speaking—had in mind simply the sky *as such*, and not the sky at a particular time of day or night.

Damis has just remarked to Apollonius that he has ascended a mountain in order to achieve a greater understanding of the Divine and yet has been forced to descend no wiser than he went up. He was induced to climb in the first place because he had heard that famous astronomers had used mountains as observatories, and he is disappointed that, having ascended further than any of them, he had come no closer to wisdom than before.

"Neither did they," replies Apollonius, "Such lookouts show you a *bluer* heaven, bigger stars, and the sun rising out of the night, but all these phenomena were known long ago to shepherds and goatherds."

Thus, he takes γλαυκός as the normal epithet for *sky* and simply intensifies it in order to make the point that everything seen from a mountain-top appears more so than usual. The fact that he has used *light blue* instead of the more appropriate *dark blue* is immaterial. Γλαυκός in this context, therefore, is almost entirely conceived as an abstract colour-term—a rare, but not unique, occasion.

Pausanias continued the connection between γλαυκός and the sea. According to Libyan sources, he said, Athene was the daughter of Poseidon and therefore her statue by the temple of Hephaestus in Athens had γλαυκοί eyes, just as in Rome, certain statues of Tritons had eyes inlaid with γλαυκός enamel. He particularly drew attention to the dazzlingly γλαυκός water which flowed into the swimming-baths at Thermopylae, described by Leake as very bright, deep blue, and by Baedeker as bluish-green. If these gentlemen were correct, the colour seems too pronounced for the normal meaning of γλαυκός, and I suspect that Pausanias's superlative shows that, as in Philostratus's γλαυκότερος, the term should be taken almost as a purely abstract reference to colour—"the *bluest* water I ever saw."

The sea-colour γλαυκός which has suddenly proved so popular in second century prose probably gave rise to the name of a Mediterranean fish, the γλαῦκος[27] although, as descriptions of the fish lead one to believe that in fact two different creatures are involved, one

cannot be certain if the connection is between γλαυκός and γλαῦκος or between γλαῦκος and γλαύξ.[28]

Two technical terms made their appearance at about this time. Galen mentioned a form of bile called *woadish* because of the plant's γλαυκός colour. It is difficult to point to any fluid within the body which could merit such an adjective, unless it referred to something like bronchitic sputum or, more likely, the matter vomited up by someone who had eaten food which had been cooked in a copper vessel.[29] Such cooking utensils were in fairly common use in the ancient world, but even bronze would contribute to a build-up of copper-poisoning in the system, and over a long period of time could introduce sufficient copper into the system to produce symptoms of the affliction—intense inflammation of the gastro-intestinal tract, accompanied by vomiting, diarrhoea, haematuria and convulsions.[30] Secondly, *P. Ross-Georg.* may have used γλαυκός as a descriptive epithet for wine newly made from black grapes, the light blue bloom of the grape having been transferred in verbal play to the wine itself as a means of identifying the source.[31]

Eyes, however, continued to be the main objects to which γλαυκός was applied, although there is more evidence in this century of the disfavour in which the colour might be held. Philostratus had perhaps hinted that γλαυκός was the colour of an Evil Eye,[32] and Lucian certainly implied that, whether they belonged to Athene or merely to a mortal, γλαυκοί eyes were not de bon goût. Something of this malign association can be found in Pollux who recorded that γλαύκινα, garments dyed with indigo, were worn by actors who wished to indicate distress or adverse fortune. It was particularly the mark of the exile, perhaps because he was forced to live in a foreign land where the natives had γλαυκοί eyes.[33]

The late second and third centuries add nothing further to one's knowledge of γλαυκός. Almost all the references are to eyes,[34] including Aelian's description of Aethiopian bulls, which compares their γλαυκοί eyes with those of lions. As Aelian was capable of writing the most extraordinary tosh about animals and their habits, one cannot be sure whether he has here simply made another gross blunder, or employed a well-known figure of speech, probably derived from Homer's γλαυκιόων, (when lions are angry their eyes show 'blue'), and used as an assumption about character by many astrologers and physiognomists—men with blond or reddish hair have blue eyes; this implies a 'leonine' appearance. Some such

reasoning may account for Alexander the Great's being described as blond-haired and blue-eyed.[35] *P. Leiden X* described the pre-dyeing of cloth with indigo to ensure a deeper tinge of purple in a later process, and *P. Holm.* the method of dyeing blue with woad.

This brings us into the fourth century, in which four new objects[36] were described as γλαυκός—two gemstones, the *iaspis* and beryl, probably blue chalcedony and an aquamarine (Epiphanius), a form of skin disease, perhaps an infection incidental to leprosy or leprous inflammation seen in non-European flesh (Methodius, repeated in the next century by Nilus Ancyranus), and one of the colours of the rainbow (Basil). Descriptions of the rainbow by ancient authors were highly varied[37] and Basil seems to have been the only Greek writer to use γλαυκός. Others used κυάνεος or κυανοῦς; but the Latin equivalent, *caeruleus*, can be found as far back as Vergil and Seneca.[38]

Finally, in the fifth century, prose confined its use of γλαυκός to the eye, both human and animal. Adamantius, a physiognomist, drew on the work of the earlier Polemon to produce a treatise in which resemblance to a particular race or animal whose traits and idiosyncracies were already known was held to be a guide to one's individual character.[39] According to him, γλαυκοί eyes betrayed untrustworthiness, greed (especially for money), instability, weakness, recklessness, and a nature inclined to cowardice. It may not be fortuitous that thieves and homosexuals, (and sometimes both in one, a thieving homosexual, or homosexual thief), were often described as having γλαυκοί eyes.[40] Hephaestion of Thebes, who may be of a slightly earlier date but whose work coincides with many notions from which Adamantius derived his own, noted that those born with γλαυκοί eyes were usually blond or red-haired and in general of an unpleasing appearance or disposition. Only such as were born under Ares escape his disapproving strictures.

Almost a thousand years after Plato, therefore, the γλαυκός eye was still regarded with suspicion and dislike, and this must have had its effect on writers of verse, whether for the lyre or the stage, who wanted to convey, by the merest hint, a suggestion that all was not well with a particular person's moral, or even physical, state.[41]

(b) *Meaning and variations*

I shall begin with γλαυκός alone, since the meaning of its various compounds will depend upon that of the plain adjective, and

observe that, of the 133 occasions on which γλαυκός is used by prose-writers, only two allow one to be quite certain about which colour is involved. One occurs in Galen, the other in *P. Holm.* (and even that has to be taken in conjunction with a reference earlier in the Papyrus), and both use γλαυκός to describe the dye produced from woad.[42] As I have remarked before, dyeing procedures in the ancient world allowed far more variation in shade than do modern, so that even here γλαυκός may refer to a number of different gradations of the same colour. But at least one may be sure what that colour is—light blue.

This much being assured, one may go on to cite a number of references from which one may deduce a meaning for γλαυκός which will be secure from reasonable doubt. Many in this category are connected with the sea and come from descriptions of paintings or other works of art. Philostratus applied γλαυκός to the sea, sea-nymphs, Amphitrite's eyes, and the colour of a pirate-ship painted sea-colour as camouflage during its marauding expeditions. As both the Mediterranean and the Aegean are famous for being blue rather than green, one may therefore safely assume that γλαυκός here refers to shades of blue, even though the sea is protean both in shape and in colour. None of the contexts in which Philostratus's word appears, suggests storm, sunrise, sunset, abnormal meteorological conditions, unusual geographical locations, or any other circumstance which might affect the colour of the sea, so one may also take it that Aristotle's reference to shallow sea-water's being γλαυκός and Pausanias's to the enamel eyes of Tritons, are references to a light shade of blue again, rather than green which describes Northern rather than Mediterranean waters. Moreover, both these pictures can be found again in Himerius who described the waters of the Aegean and the Corinthian Gulf.

For the same reason, Plutarch's description of the patina found on bronze statues of sea-captains at Delphi is almost certainly intended to be understood as *blue* rather than *green*, and any such patina would either be of a very light shade indeed, or reflect a pale luminous blue from its slightly darker surface. Epiphanius's *iaspis*, "more γλαυκός than the sea", and his further remark that the shade was deeper than flower *or dye*, clearly connects the term with blue, since the dye must be that obtained from woad or indigo.

Pausanias also referred to one specific flow of water at Thermopylae as γλαυκότατος which modern travellers may also have

seen, their accounts disagreeing somewhat but united, certainly, in reference to some shade of blue. Plato said that γλαυκός resulted from a mixture of κυανοῦς and λευκός, interpretation of which depends mainly upon what meaning one assigns to κυανοῦς. Its earliest connections are with lapis lazuli and the sea, so that it clearly refers to a darker shade of blue and this, mixed with λευκός, would produce a kind of milky light blue, the colour Theocritus applied to the sky at dawn.

Philostratus's γλαυκός sky does not agree with this, since it appears in the context of watching stars but, as I have suggested,[43] his reference involves simply the idea of blueness, for which he used the most common term for sky-blue, (κυανοῦς is rarely applied in such a way), without any thought of light or dark at that particular moment. Philostratus also described olive-leaves in a picture as γλαυκοί, and this can be understood as pale grey with a tinge of blue, since this is how the leaves appear, especially when seen from a distance.

Another group of references contains what one might call less certain implications of blue, but still offers sufficient inducement to translate γλαυκός that way rather than to place it within the green band of the spectrum. Basil's rainbow-shade, for example, although unusual is not unique and should be distinguished from green (τὸ σμαραγδίζον) which he himself mentions in the same passage.[44]

The actor's cloak remarked upon by Pollux was probably dyed with woad since that gives a γλαυκός colour, as Galen informs us. Horses' eyes may well turn light blue in the condition known as *wall* or *china eye*, so there is no reason to suppose that in Aristotle and *Hipp. Cantab.* γλαυκός does not refer to that. Whether, in Pelagonius and *P. Cair. Zen.*, the adjective was being used to describe the horse's eye or its coat is not certain. Plotinus noted that "one says a man is in pain because his finger hurts, as one says that he is γλαυκός because he has a γλαυκόν eye,"[45] and the synedochic argument could be applied to those two horses. If, however, the references were to their coats, the meaning will be something like *steel-grey*, since no horse has a coat even faintly green.[46]

References to Athene's eyes do not, on the whole, lend themselves to any but inferential interpretation. The exception is the reference by Pausanais who linked Athene's eyes with the sea by means of a Libyan legend which said she was the child of

Poseidon.[47] This connection with the sea, however slight, suggests that Pausanias's remark—that an Athenian statue of the goddess had γλαυκοί eyes—should refer to *blue* enamel because, as I have already suggested, the normal colour of the seas around Greece is blue rather than green. The further inference one may draw from his remark is, of course, that other descriptions of her γλαυκοί eyes involve the same colour and, indeed, one is assisted to make this inference by Diodorus Siculus. He said that "the Greeks" thought of Athene as having γλαυκοί eyes and he maintained that her epithet γλαυκῶπις was a colour-term connected with the air's being tinged with γλαυκός—an almost certain reference to blue, because it is hard to conceive natural conditions under which the air would turn green. It is possible, too, to use Philostratus Junior as support for this interpretation. In his description of different pictures, both a river and a barbarian γλαυκιοῶντες and, as we have noted, water was associated with blue and foreigners had blue eyes. So when Philostratus Junior said that a painted Athene "looked γλαυκόν from under her helmet," he was not likely to have changed his colour suddenly from blue to green, and in consequence is probably in accord with other writers.

Pseudo-Aristotle mentioned that certain plants turn γλαυκός with cold, a condition which takes acuity to notice and which, according to modern botanists, means that a faint grey-blue tinge can be seen on the surface of stem and leaves. This leads one to suspect that when another botanist, Dioscorides, used γλαυκός to describe the gleam upon the juice of a ripe mustard-plant's crushed stem, (distinguishing it from χλωρός in the process), he was doing so because there was none other accurate, or even adequate, enough to convey his meaning. Since he used compounds of γλαυκός to describe the leaves of different plants, he must have had in mind what modern botanists call glaucescence, this usually being of what one might call a cinerous blue. It is worth noting, however, that in Oribasius's version of this text[48] γλαυκός is omitted, and it must be admitted that the passage does make better sense without it.

All other uses of γλαυκός, mostly to describe the eyes of humans in health or afflicted with 'glaucoma', the eyes of animals, and the odd single references to new wine, or olive-oil, or owls, or the eyes of a bull, of the hare, or of the martichore, depend for their meaning upon the way one has interpreted those relatively few passages I

have just been discussing. One is bound to remark, however, that in each case, interpretation of γλαυκός as *blue* is perfectly feasible and there is never any need to turn to *green* as the alternative. Consequently, having ascertained that γλαυκός does refer to one rather than the other, any temptation to use *green* instead of *blue* should be resisted, for not only is the slippage unnecessary, it is also misleading and underlies much of the previous misunderstanding of Greek ability to distinguish one colour from another. Unless the necessity for translating one colour-term by another is ineluctable, one should always preserve the normal colour-reference and seek to explain any apparent difficulties by undertaking further research or by paying closer attention to the context.

It is a curious thought, however, that one reference, and one reference alone, connecting γλαυκός with the dye obtained from woad, enables a concatenation of inferences to be formed so that one can say, with reasonable certainty, γλαυκός has this meaning and not that, refers not to one particular colour but to another, describes certain shades within that colour alone, and does not cross the border into different chromatic territory.

Γλαυκός, then, refers to the pale milky blue of woad-dye on white cloth, of the Mediterranean and Aegean seen under the intense glare of Greek sunlight, of glaucous leaves and stems, and of the shimmering reflection of blue patina formed on the surface of certain bronze statues.

There are three nouns derived from γλαυκός, two of which are used only once in prose. The most common, γλαυκότης, refers to the colour of human and animal eyes,[49] and once to the sky, an olive-leaf, the air, φασγάνια, the eyes of Athene, and the sea.[50] In no case does the usage depart from that one expects of the adjective and, indeed, except for Athene's eyes, the objects so described are those one might reasonably infer to be blue. The remaining nouns, γλαυκισμός and γλαυκός, come from *P. Holm.* in which they refer respectively to woad-colour and woad-dye, thus providing additional support for the translation *light-blue*.

Verbs based on γλαυκός are more difficult to interpret, as one cannot be sure whether they retained something of their colour-sense in every context or whether early on they became dead metaphors, like 'Ερυθρὰ θάλασσα or metaphorical clichés like γλαυκῶπις 'Αθήνη.[51]

Both *P. Holm.* and *P. Leiden X* used the Aorist of a simple verb, γλαυκόω, with obvious reference to pre-dyeing cloth with woad, so that word can be taken as a scientific term meant to refer to colour. Γλαυκιάω, on the other hand, is found principally in verse and is almost certainly a verse-coinage, since it goes back as far as Homer. In prose, therefore, it is a borrowing. But whereas in verse it was used frequently about the active appearance of animals' eyes, especially those of lions, in prose it was used only of human eyes—by Pollux, who listed it with γλαυκός as one of a number of eye-colours; by Heliodorus the novelist, whose usage is part of an attempt to build the picture of a leonine hero; and by Philostratus Junior of the eyes of a barbarian slave, (a usage which relies partly upon affinities with poetic descriptions of wild beasts, partly upon the cliché that foreigners have γλαυκοῖ eyes), and of the eyes of the River Phasis, once again a picture reminiscent of the leonine look, but also based upon the idea of water's being γλαυκός. In prose, therefore, the notion of colour is still more or less present in the verb.

Passive forms of γλαυκόω were used twice, once by Hippocrates, once by Josephus, to describe conditions of the eye in which the cornea had become clouded for some reason, keratitis, glaucoma, or cataract—it is impossible to tell. Its compound, ἀπογλαυκόομαι, was used by *P. Holm.* to refer to cloth which has been dyed with woad, and so must make allusion to the pale blue upon white cloth, a shade therefore slightly lactescent. Hence one may deduce that the same colour is implied by other uses of the verb, all of which refer to glaucomatous or cataracted eyes.[52]

Γλαυκαίνω was used only by Methodius who may have formed it himself upon the analogy of λευκαίνω which appears in *Leviticus* 13 on which he based his discussion of moral turpitude in terms of 'leprous' eruptions. Later, he called one of these manifestations γλαυκίζουσα and was copied by Nilus Ancyranus who used that, but not the former, term. I have proposed the notion[53] that Methodius may have been thinking of an infection additional to leprosy, or leprous inflammation, seen upon negroid flesh, or perhaps a kind of mould upon the surface of animal-skin or cloth. That the colour of such an eruption was light-blue may be confirmed by other uses of γλαυκίζω. Epiphanius used the participle of a beryl, "the colour of the sea," and Strabo of a particular type of streaked marble. Both usages suggest light blue, and so an astrologer's reference to the

γλαυκίζων eye of a thief confirms other descriptions which called him simply γλαυκός.

The ending -ίζω, as I have already remarked,[54] indicates a turning towards that colour which is present in the first part of the verb, so that one may say that γλαυκίζω means "having the appearance of γλαυκός". Colour-verbs ending in -αίνω have a different significance. Debrunner listed them under Denominative-type and translated them as "x machen".[55] A few examples will illustrate his point.

(a) ἐρυθραίνω—Elagabalus with his cheeks painted red [Herodian 5.6.10]
The leaves of the medlar turn (themselves) red [Theophrastus: *H.P.* 3.12.5]
The 'male' fruit of the terebinth becomes red [*Ibid.* 3.15.3]
A youth turns himself red, i.e. blushes [Xenophon: *Cyropaedia* 1.4.4]
When flesh is struck, it turns red, then when the blood leaves the spot, it becomes white again (λευκαίνει) [Pseudo-Aristotle: *Problemata* 9.4 (890a.8)]

(b) λευκαίνω—Oars make the sea white [Homer: *Odyssey* 12.172]
The light of dawn turns the sky white [Euripides: *I.A.* 157]
Time whitens one's hair [Theocritus 14.70]
Lepra turns the skin white [LXX *Leviticus* 13.19]

In each case, the colour is imposed upon the surface either from without or from within, thereby effecting a complete change of appearance. Just as λευκαίνω in *Leviticus* 13 indicates the change of healthy skin to morbid white, so then must γλαυκαίνω suggest a similar alteration to light-blue/grey, an appearance consistent with those physical conditions I have described above.

Disease of the eye connected with γλαυκός had different names and it is largely a matter of guesswork to put a name to it. By γλαύκωμα, Agatharcides probably meant senile cataract. Aristotle attributed it to a weakness of the eyes owing to lack of fluid, and connected it with the colour γλαυκός,[56] as did Galen and Rufus, influenced, however, more by notions of sympathetic magic than scientific observation. In horses, according to Apsyrtos, γλαύκωμα caused the eye to turn 'glassy', rather like a white pebble, which may not be quite the same thing. 'Glassy' suggests colour, Roman

glass being usually tinged with blue or green, whereas the pebble image is just white. Perhaps Apsyrtos was referring to two different stages of affliction.

Demosthenes Ophthalmicus divided the term γλαύκωσις between two diseases, one of which corresponded with Aristotle's dryness and change to γλαυκός, the other being more closely allied with cataract. Galen, too, seems to have used γλαύκωσις in this latter sense, showing that later physicians distinguished between different eye-diseases with rather more accuracy than their predecessors had done. Whether, by using ἀπογλαύκωσις Dioscorides subdivided even further, or whether he was simply using the noun loosely to mean much the same as γλαύκωσις one cannot tell from his context.

Γλαυκόφθαλμος and γλαύκομμα are exactly what they say, although one may note that Plato's belongs to his recalcitrant and evil-natured horse, that an astrologer attributed it to a thief, and that the *Cyranides*, Galen, and Dioscorides gave recipes which were intended to dilate the pupil and so modify or hide the colour of the eye.

Many of the remaining compounds of γλαυκός also refer to the eyes. Ἑτερόγλαυκοι described the well-known *wall* or *china-eye* in horses,[57] which is a very light blue; ὑπόγλαυκος referred to human eyes and particularly, in one case, to the eyes of those who will become astronomers.[58] The latter is not surprising, as we have noted before (supra 113-14) the use of γλαυκός just to mean *blue* in relation to the sky, whether by day or night.[59] The prefix implies that the colour is lying under the surface and is therefore not quite seen in its full brilliance. It may be translated, perhaps, by the English word *dull.*[60]

Such compounds or variations upon the adjective as are left are better listed, with brief comments.

(a) γλαυκωπός: an olive-leaf (Cornutus) and the headfeathers of the *Catreus* (Cleitarchus). For comments upon such adjectives, see further Appendix A.

(b) ἔγγλαυκος: the air (Diodorus Siculus). The prefix indicates that the colour is in a state of flux and not yet fully achieved, an idea partly conveyed by the English suffix -ish. See supra, 47-8.[60a]

(c) γλαῦκος: a fish, the colour of the sea (Aelian, *Cyranides*) and a kind of stone (pseudo-Astrampsychus).

(d) γλαύκινος: dyed garments, almost certainly those coloured with woad and therefore light blue (Plutarch, Pollux). Cf. (*I.G.*).

(e) γλαυκανέα: perhaps patinated bronze objects (*I.G.*).

(f) γλαυκίον: a bird (Alexander of Myndos), and a plant (Antyllos).

(g) γλαυκιδανόν, γλαύκουρις: both plants mentioned by Galen as part of recipes for eye-salves. They will almost certainly have been local names, so applied because of something peculiar about the look of the plant, or because the plants were to be used for the treatment of (γλαυκοί? glaucomatous?) eyes.

In brief, then, the following are the most likely meanings of γλαυκός and its compounds when used in prose.

γλαυκός: light blue, tending to a touch of milkiness or greyishness, as in steel-grey. Occasionally, just blue. Often in the botanical sense, glaucous.

ἔγγλαυκος: light bluish.

ὑπόγλαυκος: dull light blue.

γλαυκαίνω: changing to light blue.

γλαυκίζω: having a light blue appearance.[61]

(c) *Historical development of its usage in verse*

Having now firmly established what one may call the normal prose usage of γλαυκός, one can begin a survey of the word in verse, to see how far this conforms to or departs from that norm. But since the meaning is now clear, one's task will be different, namely to look not only at the chronological development of its usage but also at the significance which it held for its users. Descriptive words in verse may serve not just to convey sense, but mood, tone, emotional or visual effect—a hundred various and, maybe, subtle purposes. In consequence, one will be asking both does this conform to the meaning of already established in prose and, in addition, what is the significance of γλαυκός intended by the poet at this particular point?

The earliest user of γλαυκός was Homer who, by so describing the sea, apparently did nothing unusual. But one must take note of two points; first, that Homer used γλαυκός only once, which suggests that he chose it carefully for the occasion, and, secondly, that the word was capable of bearing unpleasant, somewhat disturbing, overtones. Because of its association with foreigners—who are un-

predictable in their behaviour, non-Greek, somehow untrustworthy—and with eye-disease, Homer's applying to the mother of Achilles, (not quite Thetis, at this point, but the sea itself), means that we are to understand more from it than just its colour. The sea is restless, dangerous, violent; γλαυκοί diseased eyes cannot see; γλαυκοί eyes are weak and imply moral degeneracy or cowardice. Something of all this, attributed to the sea which is here called Achilles's *real* mother, must have been inherited by her son, some belief in characteristics' being heritable being as old as the Egyptians and certainly found among the Greeks.[62] Thus, by a tiny passing hint, Achilles is criticised at this point in the story as a thoroughly unworthy hero, this being indeed the burden of Patroclus's remarks. [The implications of this for Homer's γλαυκῶπις and γλαυκιόων will be dealt with later.][63]

Hesiod followed Homer in calling the sea γλαυκός, but without quite the same emotional and symbolic reverberations. His sea is rough and stormy; it is an element he will avoid if at all possible. But he seems to be using γλαυκός to mean little more than *blue*, though I doubt if his text escapes all the unpleasant associations of the word. It is clear, however, that the context does not demand any more subtle appreciation. It does not make γλαυκός part of the 'plot' as does Homer's.

He also made use of Homer's γλαυκιάω and γλαυκῶπις, but in neither case is there any additional significance. It seems that γλαυκῶπις in particular had quickly become a standard poetic cliché for Athene.[64] In the sixth century Ibycus may have revived the metaphor by applying γλαυκῶπις to Cassandra,[65] but unfortunately we do not have enough of the poem to be able to know why he did so or what he meant by it, if anything. But one may infer, perhaps, from his somewhat jejune ode in honour of Polycrates, in which he used the Trojan story to pay a spiritless compliment to the tyrant, that his usage was calculated to interest by its unaccustomed, unexpected application. There, ξανθός is transferred from Menelaus to Helen; here, γλαυκῶπις seems to be removed from Athene to Cassandra. Was there a good reason for his doing so, or was this no more than a court poet's 'amusing' touch?[66]

Alcaeus, spanning the seventh and sixth centuries, used γλαυκός of the vine, and I suggested[67] that this may have been perfectly prosaic, a botanical observation of glaucescence on a particular kind of vine, the Dusty Miller (*Vitis vinifera lucana*).

In the fifth century, when prose-writers were using γλαυκός only of eyes, poets spread themselves much further but still largely within the territory familiar to us from prose. Bacchylides, for example, used it of the olive in connection with Zeus and the crown given to athletes successful in the Olympic Games. It is true that the olive was described often by prose-writers as γλαυκός, but why did Bacchylides choose to mention the colour? If it was simply to say that the olive is glaucous, the adjective is banal and superfluous. Cornutus, however, linked the olive with Zeus because its γλαυκότης resembled the blueness of the sky,[68] and this in turn reminds one of that light blue nimbus and light blue globe depicted in Pompeian representations of Zeus. Since these were probably intended to mark Zeus as 'representative of the aither' and 'a dweller in the sky', his original function,[69] they, together with Cornutus, suggest a possible reason for Bacchylides's including γλαυκός as part of his references to Olympic olive-wreaths.[70]

Pindar's similar description of the olive (*O* 3.13), emphasising the colour (γλαυκόχροα), may have been intended to carry a like allusion, for the word appears as part of an historical digression in which the olive is linked firmly with Olympic Zeus. Moreover, it is the word here used to describe κόσμος, meaning 'ornament' in Homer, but newly used by Pythagoras to refer to the sky[71] and therefore, perhaps, ambiguous enough to suggest that γλαυκός should be more than simply a botanical adjective. Pindar's insistence upon colour was deliberate, so the Greek must read not just 'glaucous' but 'light-blue-coloured'. Hence it is possible to say that both Bacchylides and Pindar were making use of a subconscious link between the glaucous olive, Zeus, and the sky, the link being the bluish sheen associated with all three, factually in the case of olive and sky, symbolically with Zeus.

Γλαυκῶπις he applied, after the Homeric model, to Athene,[72] except at *Nemean* 10.7 where he added that she was blonde (ξανθά). Fogelmark regarded this as no more than a stereotyped application,[73] but as Homer did not call Athene ξανθά, and as ξανθά is not usually associated elsewhere with Athene, it is clear that some sort of comment is needed. In 464, Pindar wrote his seventh Olympian Ode for Diagoras of Rhodes, wherein Athene is twice mentioned in verses which link her with yellow, the colour of gold or of hair.

(a)	χρυσοκόμας (Apollo)	32
	χρυσέαις νιφάδεσσι	34
	birth of Athene	35-6.
(b)	ξανθὰν νέφελαν	49
	πολὺν χρυσόν	50
	Γλαυκῶπις	51

Now, Pindar seemed to have regarded χρύσεος and ξανθός as more or less synonymous,[74] and it is quite clear that he found the colour *yellow* significant. It represented light, warmth, divinity and, in *Olympian* 7, is associated with generosity, fame, and birth itself. J. Duchemin has noted, "le détail significatif de la pluie d'or de Zeus, qui a certainement chez Pindare une valeur voisine de celle qu'il a prise dans le mythe de Danaé."[75] Thus, it is appropriate for Athene in *Nemean* 10 who makes Diomedes the gift of immortality and causes him to be reborn, as it were, thus standing in the same kind of relationship with him as Zeus to Danäe or, in *Olympian* 7.49-51, the ξανθὰ νεφέλα (Zeus) which, with the aid of the midwifery of Γλαυκῶπις, gave birth to art which imitated life, statues (of the gods) acting like mortal men. Athene, then, is ξανθά because ξανθός = χρύσεος = divine, and that is both what she herself is and what she makes Diomedes. One cannot help noticing, in addition, that *Nemean* 10 was probably written in 463, the year after *Olympian* 7, when the phraseology of his earlier poem may still have echoed in Pindar's imagination, with the result that this particular ξανθά rose to the poet's conscious pen from subconscious workings of his verbal memory.

Pindar used γλαυκώψ to describe snakes in two of his odes written, it seems, about ten years apart, *Olympian* 6 (472?) and *Pythian* 4 (462). It is worth noting that no one else described snakes' eyes so. Nonnos, nearly a thousand years later, wrote of the γλαυκά backs of 'serpents', meaning the tail of a comet, and the γλαυκά bonds of serpents in Dionysus's hair,[76] but in neither case is it likely that the adjective refers directly to their eyes. Only Cornutus linked the γλαυκῶπις of Athene and that of snakes and the owl (γλαύξ), in a context which consists largely of attempts to explain the goddess's epithet[77] by working out the punning relationship between γλαυκός, γλαύξ, and γλαυκῶπις. The one thing snakes and owls have in common is their nictitating membrane which can give the eye a glazed, bluish appearance, and this effect may be associated in turn with

leopards, as Cornutus pointed out, because when angry, a leopard's face takes on a curiously reptilian aspect.[78]

One must not look in the realm of science for an explanation of Pindar's usage, however, but in the peculiarities of poetic craftsmanship and the unconscious verbal associations which often accompany it. Let us begin with the former. The verses in question are as follows:

> δυὸ δὲ γλαυκῶπες αὐτὸν
> δαιμόνων βουλαῖσιν ἐθρέψαντο δράκοντες ἀμεμφεῖ
> ἰῷ μελισσᾶν καδόμενοι (45-47),

and it will be remarked that γλαυκῶπες is well removed from its noun so that the listener is left in suspense for a while, waiting to find out what that noun will be. Γλαυκῶπις, the singular, would have suggested Athene, so that use of the plural will have created a certain interest which could not have been generated had the adjective been simply γλαυκοί.

'Nourished' delays still further the revelation of 'serpents' and creates a contradictory pair of ideas. Serpents do not nourish; they kill. This in turn is followed by another contradiction—harmless/perfect of its kind poison—and that contradiction is resolved only by μελισσᾶν which follows. There is further tension caused by contradictory notions in the two verbs; ἐθρέψαντο, 'the affectionate Middle', as Gildersleeve called it, and καδόμενοι which suggests distress, anxiety, even mourning.[79] The mood of the passage, therefore, consists of deliberately manufactured unease introduced by κνιζομένα in verse 44 and maintained by deft use of suspense and oxymoron, Evadne's distress at having to leave her child on the ground and ours at the prospect of his being tended by snakes, thus being given expression through the verbal structure of the verses.[80]

It is association of ideas, however, which accounts for Pindar's use of γλαυκῶπες. In verses 39-40 which deal with the birth of Iamus, φοινικόκροκος and κυανέος are contrasted; the warm, bright colour of the life-giving mother's girdle and the cool, dark blue of the overarching coppice, image of the womb from which life will come. The word for coppice, λόχμη, is another of Pindar's resonant ambiguities, for it may also refer to the lair of wild beasts, the haunt of danger, 'ominous' as Stern called it.[81] This contrast between warm and cool colours is continued in γλαυκῶπες and μελισσᾶν, where the

blue of the eyes echoes the blue of the lair/womb and the yellow (implicit) of the honey which feeds the child echoes the yellow of Evadne's girdle.

Notice, too, the complex associations of ἰῷ. It refers to snakes' venom and to verdigris upon copper and bronze, or the patina on bronze statues—the associative link being 'blue'; and to the pun between the child's name Ἴαμος and the ἴα among which he is laid.[82] The ἴος, then, takes up the idea of *blue* in γλαυκῶπες which in its turn echoes the darker κυανέος of verse 40. In each case, the colour is associated with danger, tension, ill-omen, an association we have already noted for γλαυκός in Homer and Hesiod, and in prose writers of the fifth century.[83]

The memory of this poetic construction, too, may have lingered in Pindar's imagination, for in 462 we find him again using something similar. In *Pythian* 4 the golden fleece lay in the thicket/lair (λόχμᾳ) of a serpent with blue eyes (γλαυκῶπα)[84] and a many-coloured back. It is true that the colour-component of the adjective will still suggest danger, but there is no particular reason, other than metrical, for Pindar's using γλαυκῶφ here—no delay, no ambiguity, no wish to create tension in the listener. Indeed, the verses occur directly after one of his regular formulae for quickening the pace of his story: time presses, I must hurry, I shall be brief. So γλαυκῶφ is little more than a memory of his earlier, highly successful invention and, like many a second performance, does not measure up to the first.[85]

The three γλαυκοί snakes of *Olympian* 8 are different. In the preceding verses, Troy is envisaged as a creature at its last gasp with the smoke rising from its burning towers personified, too, in what Bowra called 'anthropomorphic imagery',[86]

πτολιπόρθοις ἐν μάχαις
λάβρον ἀμπνεῦσαι καπνόν

In consequence, there is an ambiguity about both γλαυκοί and δρακόντες. The noun refers to the magical, ominous snakes but is suggested by the destructive smoke; the adjective may therefore describe either the eyes of the serpents or the serpents as a whole, 'blue' because they are part of that image produced by the rising smoke.[87]

Xenophanes, writing in combative vein, said that the Thracians claimed their gods looked like themselves, blue-eyed (γλαυκοί) and

red-haired (πυρροί), a prosaic usage of the colour-term which can be seen again in Empedocles. He said—at least, we are told by Aristotle that he said, for we have not his ipsissima verba—that γλαυκά eyes are fiery in composition, a notion which may lie at the back of Aristotle's theory that γλαυκότης is caused by a dryness of the eyes. Empedocles also described as γλαυκός a type of elder, my suggestion being that this referred to *Sambucus nigra* thus distinguished by a botanical observation from *Sambucus racemosa*.

But Empedocles also employed γλαυκῶπις of the Moon—indeed, he seems to have been the first to do so—and I have tried to account for this by proposing a verbal link between γλαυκὸς, γλαύξ and γλαυκῶπις expressing a visual image founded upon the bird's nictitating membrane.[88] It shows again that γλαυκῶπις is unlikely to have meant *gleaming* or *owl-faced*, since Empedocles's other uses of γλαυκός are prosaic and intended to describe colour. Pseudo-Empedocles, if one may deal with him at this point, invented a term γλαυκηπόρος for the sea to accompany χλοηφόρος which he had used of the earth. Both appear in an astronomical poem, but refer to terrestrial objects, and nothing else is intended beyond the slightly forced repetition of idea and sound.

In *Oedipus Coloneus*, Sophocles called the olive γλαυκός and five verses later referred to γλαυκῶπις Athene in a deliberate echoing of the colour-term.[89] Why he chose to do so is another question. Mention of either *olive* or *Athene* is likely to start its conventional epithet, but there is surely more to their occurrence than that. The strophe in which they appear is redolent of patriotic defensiveness: the olive strikes fear into the enemy (ἐγχέων φόβημα δαΐων, 699); it is everlasting; it is always observed by the sleepless eye of Zeus and by the blue eye of Athene. As Jebb pointed out in his note to 706, the Homeric epithet was suggested by γλαυκᾶς in 701, but the effectiveness of the colour relies upon the imagery of the eye underlying the whole passage. The γλαυκός olive glares fiercely at the enemy (γλαυκιόων, as it were, in the Homeric sense) while protected by the eye of Zeus and the γλαυκός eye of the city's patron goddess. So the tone is not only Homeric but informed by the associations of γλαυκός in Homer, a colour which inspires fear in others.

I have already suggested that the γλαυκός fruit of *Trachiniae* 703 may have been a technical term to describe new wine made from black grapes and, in part, a pun upon γλεῦκος, as Jebb had already hinted.[90] The usage may therefore be described as prosaic. Similar-

ly, there seems to be little that is unusual in either of his fragments which I have quoted, although one must bear in mind that they *are* fragments and therefore one lacks their context. On the first, A. C. Pearson noted that Sophocles was writing of Poseidon ruling over the inlets of the sea, or perhaps *headland*, as at Sunium, or "surveying the blue expanse of the open sea from the rocks amidst the waves to which he has risen from the depths."[91] The second, too, describes the barren wilderness of the sea,[92] and it is likely that neither use of γλαυκός was meant to signify much more than colour alone.

Euripides, too, used γλαυκός only of the sea, the olive, Athene, and the Moon, so that on the face of it his usage does not appear to be unusual. G. Wetzel suggested that the beginning of *Cyclops* showed the influence of *Odyssey* 9.39-104, and that Homer's

ἑξῆς δ' ἑζόμενοι πολιὴν ἅλα τύπτον ἐρετμοῖς (104)

had been reinterpreted by Euripides as

παῖδες τ' ἐρετμοῖς ἥμενοι, γλαυκὴν ἅλα
ῥοθίοισι λευκαίνοντες (16-17),

πολιήν becoming γλαυκὴν ... λευκαίνοντες because of the exigencies of metre.[93]

Iphigeneia Taurica provides a clear example of Euripides's care to provide what S. A. Barlow called "organic imagery", evocations of place which "provide a recurring visual focus for the main action."[94] In this play the sea provides both a definitive boundary of the world within which the Chorus lives and a means both of entry into it and of escape from it. Not once, however, did Euripides use γλαυκός of the sea in this play. Instead, γλαυκός describes the olive which stands for Athens, the focal point of the Chorus's longing to escape. Once again one asks, why was the adjective included? Simply applied to 'olive', it is little more than decorative. But if one recalls that the blue sea represented to the women not only prison but also means of escape, one can see that the adjective takes on emotional colouring from their longing for release and the unspoken picture of how that release could happen. The bird which skims over the sea, always crying for its mate, (1089-93), is the Chorus which imagines itself winging over the blue to Athens, even though it is a "wingless bird", (1095). Γλαυκός, therefore, although here applied to the olive actually represents the sea to the inward eye of the would-be fugitive women and—at a

further emotional remove—blue-eyed Athene herself, the former being the means of escape and the latter the goal.[95]

For Menelaus in *Helen*, the γλαυκός sea represents a blue expanse upon which he has wandered for years, οἶδμα, πόντιος, and ἅλς together in the same verse emphasising surge, depth, and expanse,[96] an unfriendly and dangerous element which wrecks those who travel upon it. "Azure-eyed Galene" (1457)[97] represents the same sea, calm and therefore difficult to sail, a picture which is modified later in the same chorus (1501) to show the effect of wind ruffling the light blue swell[98] to reveal its depths of darker blue and the flecks of foam atop the waves as they move towards the shore.[99] Notice the contrast between the hostile γλαυκὸν οἶδμα of verse 400, unbroken by wind or rowers, which throws up Menelaus on the shores of Egypt, and the friendly γλαυκὸν οἶδμα of 1501 which contains both κυάνεος and πολιός and is bearing him home with his wife, the implication being that γλαυκός by itself is not a well-omened-colour.

In *Troades* 802-3, four words are carefully placed together—κλάδον γλαυκᾶς 'Αθάνα, οὐράνιον [στέφανον]—each reacting upon the other to produce an intricate series of references. The olive is γλαυκός botanically, but also because it belongs to Athene who is γλαυκῶπις. It is οὐράνιος because γλαυκός suggests the non-botanical sense, too, and so the οὐράνιον στέφανον affects the word κόσμον which follows, a decoration for shining Athens but also the blue vault of the sky. This is word-play, but it shows how the associations of γλαυκός could add to the richness of the textual pattern. Another example can be found in *Heracleidae* 748-54. The Moon (and Earth) are urged to shout to the sky (which is blue) where γλαυκή Athene has her dwelling. Both Moon and Athene are associated with γλαυκῶπις; even the night-sky itself can be called γλαυκός;[100] so it needs only the mention of one to set in train the colour-associations of all three.

Finally, in *Supplices* 258, Euripides deliberately drew attention to the leaves of the olive with their χλόη side uppermost and their γλαυκή side below. The reference is botanical but not simply that. These olive-branches were suppliant-boughs borne by the Chorus, and one is reminded by Porphyrius of Tyre that, "in summer the white of the leaves is turned upwards, but in winter the white [parts] turn over. Therefore, in their prayers and supplications, men hold in front of them olive branches as an augury that the

darkness of their perils will be transformed into white [light]".[101] So, by his apparent care for botanical accuracy, Euripides seems to be reminding one of some such symbolic interpretation of the colours.

Aristophanes made little use of γλαυκός. In *Thesmophoriazusae* 45 it describes the sea, possibly started by mention of αἰθήρ in the previous verse, and elicits the cry "βομβάξ" which LSJM translates as *prodigious* but is surely connected with βομβέω, roaring or booming as of the sea, (*Odyssey* 12.204; Simonides, fr. 1).[102] Archestratus seems to have used γλαυκός to describe the oil derived from ripe olives, a prosaic usage in contrast with Euphorio's γλαυκῶπις which, used of the olive, must have been rather odd and presumably have been intended so.[103] Prosaic use of γλαυκός can be seen in Numenius who thus described a tunny and in Aratus who distinguished between blue and yellow stars in the Constellation *Lepus*. For the most part, however, the poets of the third century used γλαυκός to describe the sea or Nereids connected with it.

Of these, Lycophron was the earliest. I have suggested already[104] that γλαυκός here refers to the surface of the sea reared up in the form of a wave which appears darker (κελαινός) underneath and is flecked with foam at its crest. This Lycophron envisaged as the jaws of a sea-dog sent by Poseidon to destroy Teucer. It is a frightening picture of the sea which makes explicit those hidden fears underlying much of the usage in earlier poets. As we have noted, however, γλαυκός very often describes the open expanse of sea-swell, disquieting not enraged, its violence still potential, not realised. This means that the full possibilities of γλαυκός can be called into play or allowed to lie dormant as the poet wishes.

Apollonius Rhodius observed that Euphemus, son of Poseidon, could skim across the γλαυκόν swell of the sea (οἶδμα again) without wetting his feet. The passage occurs in his 'Catalogue of Ships', an imitation of Homer's, and verses 1.182-3 themselves echo lines from *Iliad* 20.226-9.

Iliad: αἱ δ' ὅτε μὲν σκιρτῷεν ἐπὶ ζείδωρον ἄρουραν,
ἄκρον ἐπ' ἀνθερίκων καρπὸν θέον οὐδὲ κατέκλων·
ἀλλ' ὅτε δὴ σκιρτῷεν ἐπ' εὐρέα νῶτα θαλάσσης,
ἄκρον ἐπὶ ῥηγμῖνος ἁλὸς πολιοῖο θέεσκον.

Argonautica: κεῖνος ἀνὴρ καὶ πόντου ἐπὶ γλαυκοῖο θέεσκεν
οἴδματος, οὐδὲ θοοὺς βάπτεν πόδας, κτλ.

Homer's πολιοῖο has been transformed here into γλαυκοῖο, probably for the sake of metrical requirement, as may have happened in Euripides, *Cyclops* 16-17.[105]

With regard to Theocritus, Gow's note on 7.59 to the effect that the Nereids are γλαυκαί because they take their colour from the element in which they live is true but does not go far enough. It comes after two references to halcyons, half-mythical birds which may be identified, at least in part, with the kingfisher. The blue of the Nereids may also reflect the blue of the birds which are dear to them. But the halcyons have a particular role to play in this Idyll. They are to calm seas which have been rent by stormy winds, and it may be this calming function of theirs which suggested that they were dear to γλαυκαί Nereids, γλαυκός referring most commonly to the tranquil swell of the open sea.[106] Theocritus's other applications of blue to the sea do not appear to be more than conventional,[107] and the same may be said of his γλαυκή Athene (28.1). His blue morning air (16.5) is a matter of accurate factual observation, not of poetic licence or symbolism. Phanocles, the remaining third century poet to refer to the sea, seems to have done little more than use colour-terms for their own sake. In 1.14 he referred to the blue waves (ῥοθίοι) and in the next line to the grey sea (πολιὴ θάλασσα), neither adjective being of particular value or significance.

In Herodas and Phoenix of Colophon, we have renewed examples in verse of γλαυκοί eyes. Phoenix, describing a paederast, gave him a dark complexion and light blue eyes—certainly a startling combination—and Herodas differentiated between two Kerdons by giving one of them γλαυκοί eyes. In neither case is it possible to say for sure that the usage is meant to be condemnatory, although inference from prose usage could suggest it.[108]

The second century added little to the development of γλαυκός. Eratosthenes probably used it to describe the light blue shade of lapis lazuli in connection with one of his planetary spheres, a usage also to be found in Hegesianax. Nicander used it botanically of the olive; Limenius, in similar fashion but with that interweaving of associations we have had cause to note before. A reference to the Aegean stimulated γλαυκός which in turn suggested the following πόλος οὐράνιος ἀνέφελος.

For Moschus, the air and the sea were γλαυκός, Antipater of Sidon made a joke involving γλαύξ and γλαυκή Athene, Parthenius described Thetis and Meleager the sea as γλαυκή, the latter using the

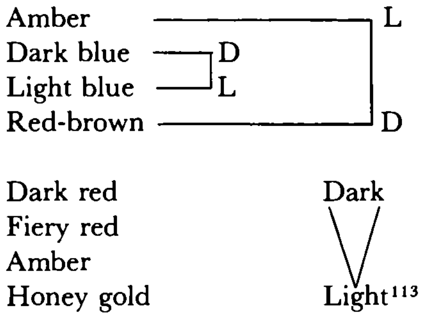
old-fashioned 'Homeric' genitive, perhaps in order to draw attention to the water so that his "ἐξ ὑγροῦ, Κύπρι, σὺ πῦρ τέτοχας" will have added force. The *Anacreontea* used γλαυκός of the sea on an engraved plate, so perhaps it referred to blue enamel. Marcus Argentarius and Maccius so described a vine, and I have already suggested, in connection with Alcaeus, that this was probably a botanical term for *Vitis vinifera lucana.* There is an enormous chronological gap between Alcaeus and the two *Anthology* poets, but those two were more or less contemporaries, and so it is not impossible that one imitated Alcaeus's phrase and the other imitated him.

Antiphilus contrasted κυανότριχα χαίτην with the γλαυκός bottle in which it was sent, Philippus called Athene γλαυκῶπις and Philodemus the sea-goddess Leucothea γλαυκή, in a prayer for a calm sea and a safe voyage. These bring us to the second century A.D. and it must be clear that the symbolic or emotional properties of γλαυκός no longer interested poets. Indeed, Euripides was practically the last verse-writer to use them naturally without an air of antiquarianism or melodrama clinging to his usage.

Antiquarianism can be seen in Dionysius Periegetes. He used γλαυκός prosaically enough to describe a form of beryl, pale blue aquamarine as I have proposed,[109] but chose γλαυκιόων for the topaz, an odd 'Homeric' word which is really out of place in his poem and leads one to imagine that he wanted to use *light blue* again, found himself in metrical difficulties, and resorted to the Homeric participle to solve his problem. Mesomedes's γλαυκά of the Moon is simple convention. Oppian of Cilicia was a little more deliberate in his choice of words. In *Halieutica* 1.791, the blue sea reduced to calm (781) after a storm gives birth to innumerable Fry which fleck the surface of the blue like foam, and γλαυκή Amphitrite is whitened by them. A similar deliberate contrast of colours is made in 5.271 between γλαυκή water and its being turned red by the death-wound of a whale.[110] Apart from these two examples, however, his reference to the light blue jaws of a dolphin (2.577) is interesting, and that to the shoots of an olive (4.269) no more than conventional.

Oppian of Syria referred to horses with γλαυκοί eyes, which were to be used in bear-hunts. Why these, and not other, horses were to be used is puzzling, but it may simply be that horses with γλαυκοί eyes were reckoned to be particularly fine, as Pelagonius remarked, and one needs horses of mettle and reliability to pit against a large

animal like the bear.[111] This Oppian also revived γλαυκιάω to describe the eyes of angry leopards and the wild beastly eyes of Bacchantes. I have already proposed that this is a curious Homeric metaphor, and Oppian's use of it comes, noticeably, in a passage full of contrast between colours, "blue" and red (φοινίσσονται) which is reminiscent of the physiognomists-"if there is sparkling in γλαυκοῖς and bloodshot eyes, it shows recklessness and an urge to destroy which borders on madness"[112]—and in Book I, γλαυκός seems to be part of a deliberate pattern of colour which goes thus;



Convention, word-play, Homericising, occasional prosaic usage —these were now indeed the only uses left for γλαυκός. The Sibylline Oracles so described the sea, Jordan, and the olive; in the fourth century, Gregory Naziazenus remade the γλαύξ—γλαυκός joke and observed that a woman with light blue eyes should be embarrassed; the Orphic poems referred thus to the sea, Tethys, and Athene. Quintus Smyrnaeus revived γλαυκιόων—hardly surprising, since he was deliberately imitating Homer. The novelty he had to offer was in applying the verb to Laocöon's eyes which were also "flecked with much blood", a description indicating extremes of emotional disruption. Tryphiodorus applied γλαυκός to the beryl, Athene, the sea, and moonshine, this last in a particularly forced and unnatural fashion.[114] In the fifth century, only Nonnos is worth mentioning. He included references to the sea, comets, Athene, olives, the Moon, enamelled harness, snakes, and a sea-lioness. Certain further oddities of expression I have already noted;[115] none adds much to one's appreciation of γλαυκός in verse.[116]

It is quite clear from this survey that γλαυκός lost a good deal of its early emotional power by the fourth century B.C. Until then, prose

had associated the word largely with abnormal eyes—those which were in some way diseased or which belonged to foreigners—to which verse added fear of the open sea with its latent and unpredictable destructive power. Not until the fourth century A.D. was anything like this association revived, and then it took place in prose, in the work of the physiognomists. To be sure, certain earlier references to blue eyes in the second century A.D. are unfavourable, but they can be accounted for in a number of different ways—dislike of the unusual, fashion, personal antipathy, as well as ancient association with the Evil Eye. Verse, however, quickly forgot any such reverberations—even the post-Homeric use of γλαυκιόων was a self-conscious piece of archaising—and after Euripides, settled into using γλαυκός either as a simple colour-term or as part of the poet's play with words.[117]

(d) *Symbolic and emotional associations*

Many experiments have been made, especially during this century, in order to determine what are people's attitudes towards colours, either with a view to elucidating the physiological effect of the subject's viewing one colour or more, or to discovering more about the subject's psychological response to the stimuli provided by colours. Perhaps the most useful results for a layman are those obtained from a set of experiments carried out by Bullough in 1907. Therein, he suggested that the reasons given by people for liking or disliking the colours shown to them were four:

(i) *the objective aspect* which commented upon the qualities of the colour itself, whether it was bright or dull, and so forth;
(ii) *the physiological aspect* which said that the colour was stimulating or depressing, affecting the body and its functions in some way favourable or unfavourable;
(iii) *the associative aspect* which reminded the subject of an object or situation perhaps pleasant,[118] perhaps unpleasant, and
(iv) *the character aspect* which treated the colour as though it were a person, calling it energetic or aggressive or sad.[119]

Other experiments have tended to show that a colour's being regarded as 'pleasant' varies directly with the quality of its saturation, red and blue therefore being preferred to yellow and green. A necessary caveat, however, that "individual differences are very

marked in hedonic judgments upon colours", was made by the experimenter,[120] although this does not mean to say that choice of certain colours in preference to others cannot exhibit a regular pattern or be a guide to distinguishing vicissitudes or developments of character. Observations made of children's growing awareness of and preference for colours does show just such a pattern, and their preferences can be linked with certain stages in the growth of their emotional life. There seems to be a connection between the child's emphasis upon blocks of colour, as opposed to line and form, and strong emotional drives; and, in addition, different colours indicate different emotional states.[121]

It was suggested, for example, after observation had been made of selected children's painting, that "those two, three, and four-year-old children whom we observed to prefer blue...tended as a group to be in the process of developing away from impulsive emotional reactions towards controlled behaviour."[122] An emphasis on blue, however, was understood to indicate sublimation of strong basic feelings,[123] and certain emotional conflicts were associated with the use of blue—between the desire to remain infantile and the wish to grow up, between the wish to be dirty and a desire to be clean and so win adult approval.[124]

Thus, blue was a colour indicating emotional instability underlying surface calm, an association we have already noticed was made by the Greeks with reference to light blue.[125] This does not mean, however, that one may support those earlier views of Greek colour-vision which were based upon its being 'at a primitive stage of development' or 'in the infancy of mankind'. It is merely remarkable that the same colour should elicit a similar response in two such entirely dissimilar groups of people, and it is quite possible to compare two other dissimilar groups and produce an interpretation different from this.[126] One's endeavours to find out why the Greeks responded in their particular fashion is impaired by one's inability to subject them to the same range of tests as modern, living people. In fact, after using the evidence we have, only one of Bullough's four categories can be applied to the Greeks—the associative aspect. Through the remaining literature and occasional artifacts one may guess, in a fairly enlightened fashion, that when they gave conscious thought to it, Greeks found γλαυκός unpleasant because it had unpleasant associations for them—diseased eyes, the Evil Eye, the eyes of Northerners and, later, the sea.

I shall return to this point in a moment, but first must try to deal with the problems posed by two of the earliest usages of γλαυκός—γλαυκῶπις and γλαυκιόων. I have maintained already that these refer to colour, to light blue in fact, but have not yet answered the questions, Why should light blue in particular have been the colour of Athene's eye's? and, Why were light blue eyes attributed to lions, even in metaphor?

E. Watson-Williams has noted that, "Homer's Athene seems to represent two different goddesses," Pallas Athene who is the virgin goddess of war, and γλαυκῶπις Athene, *never armed*, who is the patroness of arts and crafts.[127] As the latter, she was interested, among other things, in pottery and in the various stages of that craft, from fashioning the wet clay to firing in the kiln,[128] this last stage being the most difficult part of the process and productive of many accidents both to the pottery and to the potter. These may be illustrated by the famous *Epigramma Homericum* 14.

"Come, then, Athene, with hand upraised over the kiln. Let the pots and all the dishes turn out well and be well fired: let them fetch good prices and be sold in plenty in the market, and plenty in the streets. Grant that the potters may get great gain and grant me so to sing to them. But if you turn shameless and make false promises, then I call together the destroyers of kilns, Shatter and Smash and Charr and Crash and Crudebake who can work this craft much mischief. Come all of you and sack the kiln-yard and the buildings: let the whole kiln be shaken up to the potter's loud lament. As a horse's jaw grinds, so let the kiln grind to powder all the pots inside. And you, too, daughter of the Sun, Circe the witch, come and cast cruel spells; hurt both these men and their handiwork. Let Chiron also come and bring many Centaurs—all that escaped the hands of Heracles and all that were destroyed: let them make sad havoc of the pots and overthrow the kiln, and let the potters see the mischief and be grieved; but I will gloat as I behold their luckless craft. And if anyone of them stoops to peer in, let all his face be burned up, that all men may learn to deal honestly."[129]

To guard against these it was the custom to put comic or grotesque figures (γελοῖα) in front of bronze-foundries and on pottery-kilns in order to avert ill-will (ἐπὶ φθόνου ἀποτροπῇ).[130] These were called βασκάνια, and it is interesting to note a title of Athene—Τελχινία—which, we are informed, is the same as βάσκανος. The patroness of craftsmen, in this case metal-workers, is also she who averts danger from their work.[131]

Production of black-figure vases took place under what are known as 'reducing' conditions. During the process of firing, carbon is liberated from the fuel and oxygen from the air or draught. The two combine and develop combustion which may be of two kinds: if there is too much air, carbon dioxide may form, such a condition being called *oxidation*; too little air, however, may produce carbon monoxide, and this condition is known as *reduction*.[132] If ferrous oxide is present in the clay, firing under reducing conditions will produce a blackish colour, and indeed one of the most common injuries to ancient glazes was caused by air in the kiln coming into contact with the vases, thus altering the reduction, and producing red instead of the intended black.[133]

But another kind of accident could befall the potter himself. J. Lindsay has remarked," if the spyhole was suddenly opened when the kiln was fired under reducing conditions...there could easily be a delayed burst of blue flame which could burn a careless potter."[134] Little wonder, therefore, if this pale bluish flame quickly associated itself with the eyes of Athene, the potters' patron. Eyes have always been considered a source of magical power, and it is noteworthy that one method of frightening away their evil influence is by making a hideous face, distorting it by widening the eyes, baring the teeth, and sticking out the tongue.[135] Potters were keen to be protected from any malign influence upon their work and so attached to the kilns βασκάνια, charms against the Evil Eye, some of which were simply distorted faces, but others, such as Athene's owl, representative of the goddess herself.[136]

Thus, it is possible to offer a tentative answer to the question, Why were Athene's eyes light blue? She it was who watched over the reducing process in the potter's kiln wherein the pale blue flame went about its work, unpredictable, sometimes dangerous, therefore to be feared. Protection against its unpredictability could be found in the more powerful blue of Athene's eyes which, by a form of sympathetic magic, could shield those whom she favoured from the effects of the flame in the kiln, or their pots from unexpected disaster.[137] Γλαυκῶπις, therefore, may have had its origins in the early stages of a craft. It is noticeable that apotropaic eyes and monsters tended to disappear from Greek painted vases during the fifth century, having been very common on the earlier black-figure ware,[138] and it may be that, with the growth of red-figure and its different firing-requirements, the dangers peculiar to black-figure

production largely disappeared and with them the special need for aversion.[138a]

This brings me to γλαυκιόων and my second question, Why were lions' eyes associated with light blue? It is no accident, perhaps, that Athene's visible symbol of aversion was the gorgoneion worn on her breast. Accounts of the gorgon's origins have been many and varied; Jane Harrison's remarks seem most appropriate in the light of one's previous discussion. She suggested that the gorgoneion was a ritual mask to which a monster-story had become attached in order to account for it. It was an incarnate Evil Eye; "it slew by the eye, it fascinated."[139] Now, K. Gerogiannes proposed that the head of the gorgon was derived from an apotropaic lion's head,[140] a notion which throws interesting light upon a remark made by Pliny.

While describing various kinds of *smaragdus*, he noted the presence, on a burial-mound in Cyprus, of a marble statue of a lion with eyes made of *smaragdus*. "These, it is said, blazed so brightly even far below the surface of the sea, that the tunnies fled in terror."[141] He went on to remark that the stone was limpid without being faint and reproduced the transparency of sea-water (that is, was of a similar colour)—"varie glauci", as he said later of this type.[142] It was found in copper-mines, an observation which may have misled the Loeb editor of Pliny to suggest that the stone was perhaps a green crystalline quartz known as mother-of-emerald. Mention of tunnies, which are blue,[143] and transparent sea-water, which is also blue,[144] as well as memory of Homer's γλαυκιόωντες lions, lead one to propose azurite, a brilliant light blue stone as the name suggests, a form of malachite and also found in copper-mines since it is, itself, an ore of copper.[145]

The intention of this lion's eyes was obviously apotropaic since the statue was protecting a prince's tomb, and their effect was fearful, penetrating far below the surface of the sea. This emanation from the eyes which can do harm, perhaps prove fatal, was a characteristic of the Evil Eye—one thinks of Medusa, or the basilisk,[146] and its being linked with blue inevitably leads one back to γλαυκῶπις Athene and her power of protection. Athene's eyes were blue because her 'fascination' could be greater than the destructive power of the blue flame in the kiln; this fascination was symbolised also in the gorgon's head, perhaps derived from that of a lion, distorted in the interests of apotropaic magic; his eyes, too,

were 'fascinating' and so shone blue, γλαυκιόωντες; and men who faced him were 'petrified' with fear, literally in the case of Medusa—such may be the belief underlying those two Homeric usages.[147]

In sum, therefore, γλαυκός and words derived from it were used mainly of the eye, especially of those eyes affected by glaucoma or cataract. Instinctive fear of blindness must be very strong among all sighted human beings, so their immediate reaction to such an eye will manifest itself in a repulsive frisson. Men will wish to ward off a similar fate from themselves. Healthy eyes of that colour therefore have something unnatural about them, and their relative in frequence in Greece proper (and, indeed, in Crete), will have aroused a similar instinctive hostility. Fear of the unknown and of the unusual would contribute to the notion that possessors of such eyes must be malign; hence the long association of blue and the Evil Eye which has lasted in Greece and the surrounding area until modern times. Not surprisingly, these feelings of hostility would be strengthened by knowledge that foreigners from the cold North —those dangerous, incursive, un-Greek people—had blue eyes, their intensity only made the greater by frequent accompaniment of blond hair (we have noted often the close association of ξανθός and γλαυκός).[147a]

Finally the sea, moody and unpredictable, was called γλαυκός —Homer used the adjective only once, to make a subtle and uncomplimentary point, and Hesiod also used it only once of the rough and stormy element he so detested—but it should be noted that, apart from these two special cases (and Hesiod tended to imitate Homer's usage very closely), the sea was not called γλαυκός again until the fifth century when the adjective was beginning to lose its power. In other words, the intense emotional and symbolic power of γλαυκός stems almost entirely from its application to a certain type of eye which was felt to be maleficent, dangerous, and hostile and which Athene, alone of all the gods, possessed in her role of divine protectress, as it were a living amulet, of certain Homeric heroes in particular, and of Athenian craftsmen in general.

Γλαυκῶπις, then, meant 'with light blue eyes'; γλαυκιόων, 'showing light blue', perhaps with the sense of 'fascinating' or 'petrifying', as of the Evil Eye.

(e) *Etymology*

The most misleading statement about the origin and meaning of γλαυκός was made by the Scholiast on Apollonius Rhodius: *Argonautica* I 1280/81a, who said first that γλαυκός and χαροπός are synonymous because both are connected with brightness, and secondly that γλαυκός is probably derived from γλαύσσειν, meaning *to shine*. His comments were mere guesswork since, as my discussion of χαροπός will show, the two adjectives have entirely different meanings and therefore any connection between them, such as their being used to describe the light, is quite fortuitous. In fact, χαροπός means *amber*, but its being applied to the sea by certain poets, and the very frequent manuscript confusion between it and χαροποιός, led to commentators' mistaking it for a word similar to γλαυκός. The confusion was made easier because of Homer's using both χαροπός and γλαυκιόων of lions, although the latter usage in connection with lions is as peculiar as the former's in connection with the sea.

Misunderstanding, then, reigned; but the ancient dictionaries reveal yet other sources of confusion. Their definitions of γλαυκός are as follows:

(a) Hesychius: γλαυκός = λευκός.[148]
(b) Suidas: γλαυκός = λευκός, κυάνεος.
(c) *Etymologicum Gudianum*: γλαυκός = γάλακτι ἐοικὼς τὴν σάρκα. καὶ τὰ ὄμματα.
(d) *Etymologicum Magnum*: γλαυκός = τὸ ἐπίθετον τὸ σημαῖον τὸν ἔχοντα πυρώδη τὰ ὄμματα.

The presence of λευκός among these definitions is odd and may be explained in one of two ways. Perhaps one should take it to mean *pale*, since γλαυκός does refer to a milky shade of blue;[149] or look upon it as evidence of popular etymologising which connected γλαυκός with γαλανός and γαλήνη, both of which suggested an origin in γάλα.[150] Fieriness of eye is a very late definition, wildly astray in its colour-reference, unless one is to assume that πυρώδη is meant to refer to the 'character' rather than to the colour of the eyes, in which case one may bear in mind Adamantius's remark that γλαυκοί, *bloodshot* eyes indicate a violent and manic personality.[151] Or one may link πυρώδη with the yellow eye of an owl, and suppose that the connection γλαύξ-γλαυκός was what the writer had in mind. This, however, is unlikely, as he went on to make the usual derivation from γλαύσσω.

It is perhaps worth remembering that the earliest lexicographer, Hesychius (who based his work on dictionaries earlier still), did not make any such connection.[152] The *Etymologicum Gudianum* (about 1100 A.D.) based upon earlier conflations which were still later than Hesychius, was confused and offered a number of different possibilities s.v. Γλαυκῶπις: (a) ἀπὸ τοῦ γλαυκοὺς ἔχειν τοὺς ὦπας, (b) ἀπὸ τοῦ δεινὸν γλαύσσειν τοὺς ὀφθαλμούς, (c) ἀπὸ τοῦ γλαυκὰ ὀπίζεσθαι. The first is a straightforward reference to colour, the second to Athene's frightening eyes, the third to the Evil Eye, in itself a reference to colour. I suspect from this that Hesychius's earlier references to fear sprang, not from the active *glare* of γλαυκοί eyes, but from the *reception* they got *because they were blue.*

What, then, does γλαύσσειν mean, since the lexicographers were so intent on deriving γλαυκός from it? Γλαύσσειν = λάμπειν was the regular remark.[153] Only one example of its use was cited, however, and that in a compound διαγλαύσσειν, used by Apollonius Rhodius—"when χαροπή dawn shines down from the sky, rising from the East, the pathways διαγλαύσσουσι, and the dewy plains (πεδία) shine with a bright radiance."[154] The immediate sense of the verb strikes one as being something like *glisten* or *gleam*, but there are two points worth considering before one takes it as such.

First, διά should imply that the action happens *through* something else. Philostratus Junior described the picture of a sea-monster charging through the waves which curled around his belly which, in turn, showed white through the blue of the sea (διαλευκαίνων κάτωθεν).[155] Smoke like a mountain-mist, coming from a fire-signal, darkened the air (διαμελαίνων τὸν ἀέρα) in a battle between the Romans and Macedonians—that is, the air was tinged by the smoke as it rose from below.[156] In Apollonius's verse, therefore, the paths should *shine through from beneath*, an odd phrase if he meant footpaths on dry land.

This brings me to my second point. Jason and the Argonauts have just set sail, leaving behind Heracles, and are far from the coast (1278) when dawn comes up. The extra details then added about dawn's lighting the paths and dewy plains are therefore out of place and distracting unless they refer to the pathways and dewy plains of the sea. Certainly there is precedent for the use of πεδίον in this manner.

Aeschylus, fr. 150: δελφινοφόρον πεδίον πόντου διαμειψάμεναι.
Ion tragicus, fr. 60: ὅταν δὲ πόντου πεδίον Αἰγαῖον δραμῶ.

Timotheus: *Persae* 89: ἐγκλῄισει δὲ πεδία πλοίμα νομάσιν αὐγαῖς.
Euripides: *Phoenissae* 209: ὑπὲρ ἀκαρπίστων πεδίων.[157]

In consequence, it may be possible to take ἀταρμοί and πεδία as part of a somewhat strained metaphor referring to the sea, and allow διαγλαύσσουσι to mean 'showing light blue from underneath,' as the paths would while the ship made its way along them, parting the sea so that the underlying colour was laid bare for a moment. Should this be so, the ancient lexicographers were right in thinking that γλαυκός and γλαύσσειν were connected, since one colour-term must imply another, and the meaning 'bright' or 'sparkling', as we have seen, is not sufficient for γλαυκός.

All that, however, has simply tried to make sense of the ancient derivation. The origins of γλαυκός are to be found not there but in Linear B *ka-ra-u-ko* which seems to have been a proper noun.[158] The name Glaucus can refer to two different beings. First, there was Glaucus, the great-grandfather of Homer's Glaucus, who kept a stud of mares in Boeotia. H. J. Rose attributed the name either to some connection with the sea or to this being a vigorous man with bright eyes.[159] The first may be appropriate to another Glaucus who leaped into the sea and was turned into a marine divinity: the second supposes 'brightness' to be the meaning of γλαυκός which is both incorrect and unlikely. A man does not receive a personal name, or soubriquet, from mere sparkling eyes. We know that Homer's colour-names for horses can be parallelled in Mycenaean Greek,[160] and so it could be argued that the horse-owning Glaucus acquired his name from his ownership of horses with blue eyes. Technical use of γλαυκός to describe such eyes, however, appears rather late in Greek,[161] and I am not really convinced that a peculiarity of horses' eyes would result in their owner's being dubbed odd.

Much the same kind of objection can be lodged against γλαυκός referring to the sea-god. Apart from Homer's single, carefully contrived, use of γλαυκός to describe the sea,[162] such usage is, again, relatively late and it is a little hard to see why the sea-god should have received his name from a usage which virtually disappears until resurrected in fifth-century verse. This is especially so when one considers the earliest usage of γλαυκός. It is confined to eyes, whether human or animal, healthy or diseased, and in the form γλαυκῶπις is frequent in Homer and the early poets. Consequently, I think it probable that Linear B *karauko* was the name originally

given to someone with light blue eyes, a phenomenon rare enough on Crete to warrant a personal nickname.

The implication of this is that one need look no further for the fons et origo of γλαυκός. There appears to be no root elsewhere for the word, and so one may reasonably presume that *karauko* was a native Cretan word borrowed by 'Greek' and absorbed into the language as it developed in order to describe a peculiar physiological occurrence.[163] My guess, if I may be allowed one, is that *karauko* originally referred to glaucomatous or cataracted eyes and was then applied to the healthy light blue whenever they made their infrequent appearance, whether from abroad or among the native population. Such usage, at any rate, matches the earliest prose-references we have found in Classical Greek writers, and it may be no accident but simple history that they have preserved in this manner the traditional practice of Minoan Crete.

(f) *Word lists*

A: Chronological sequence of authors.
B: Objects to which γλαυκός and its compounds are referred.
C: Dates of first appearances of γλαυκός and its compounds.

A.

	PROSE	*VERSE*
Pre 7th B.C.		HOMER γλαυκός, γλαυκῶπις, γλαυκιάω.
7th B.C.		HESIOD γλαυκός, γλαυκῶπις, γλαυκιάω. TYRTAEUS γλαυκῶπις.
6th B.C.	[OSTRAKON?] γλαυκῶπις.	ALCAEUS γλαυκός. HYMNI HOMERICI γλαυκῶπις. IBYCUS γλαυκῶπις. XENOPHANES γλαυκός.
5th B.C.		PINDAR γλαυκός,

	Herodotus		γλαυκῶπις,
	γλαυκός.		γλαυκόχροος
	Hippocratic Corpus		γλαυκωπός,
	γλαυκός, γλαυκόομαι,		γλαυκώψ.
	ἐγγλαυκόομαι.	Empedocles	
		γλαυκός,	
		γλαυκῶπις.	
		Bacchylides	
		γλαυκός.	
		Sophocles	
		γλαυκός,	
		γλαυκῶπις.	
		Euripides	
		γλαυκός,	
		γλαυκῶπις.	
		Aristophanes	
	Ctesias	γλαυκός,	
	γλαυκός	γλαυκῶπις.	
	Xenophon		
	ὑπόγλαυκος (?)		
	Plato		
4th B.C.	γλαυκός, γλαυκόμματος.		
	Aristotle		
	γλαυκός, γλαυκότης,		
	γλαύκωμα, ἑτερόγλαυκος.		
	I.G. (?)	Archestratus	
	γλαυκειοῦς.	γλαυκός.	
	Cleitarchus	Lycophron	Aratus
	γλαυκωπός.	γλαυκός.	γλαυκός.
3rd B.C.	Callimachus	Theocritus	
	γλαυκός.	γλαυκός.	
	P. Petr.	Apollonius Rhodius	
	γλαυκός.	γλαυκός.	
	P. Cair. Zen.	Herodas	
	γλαυκός.	γλαυκός.	
	Aristeas	Numenius	
	ἀπογλαυκόομαι.	γλαυκός.	
		Phanocles (?)	
		γλαυκός.	
		Phoenix (?)	
		γλαυκός.	
		Euphorio	
		γλαυκῶπις, γλαυκωπός.	
2nd B.C.	I.G.	Eratosthenes	
	γλαυκάνεον.	γλαυκός.	
	Agatharcides	Hegesianax	
	γλαύκωμα.	γλαυκός.	

		Limenius γλαυκός.
		Moschus γλαυκός.
		Nicander γλαυκός.
		Antipater of Sidon γλαυκός.
		Meleager γλαυκός.
1st B.C.		Parthenius γλαυκός.
	Strabo γλαυκίζω.	
	Diodorus Siculus γλαυκός, ἔγγλαυκος, ἀπογλαυκόομαι, γλαυκῶπις.	Anacreontea γλαυκός.
1st A.D.	Alexander of Myndos γλαυκίον.	Philippus γλαυκῶπις.
	Cornutus γλαυκός, γλαυκότης, γλαυκῶπις, γλαυκωπός.	Philodemus γλαυκός.
	Demosthenes Ophthalmicus γλαυκός, ἀπογλαυκόομαι, γλαυκώσις.	Marcus Argentarius (?) γλαυκός. Antiphilus (?) γλαυκός.
	Dioscorides γλαυκός, ὑπόγλαυκος, ἀπογλαύκωσις, γλαυκόφθαλμος.	Maccius (?) γλαυκός.
	Dorotheus γλαυκός, ὑπόγλαυκος.	
	Josephus γλαυκόομαι.	
	Plutarch γλαυκός, γλαυκότης, γλαύκινος, γλαυκῶπις, ἀπογλαυκόομαι.	
2nd A.D.	Cyranides γλαυκός (?), γλαυκοφθαλμία.	
	Ptolemy γλαυκόφθαλμος, ἀπογλαύκωσις.	Mesomedes γλαυκός.
	Galen γλαυκός, γλαυκότης, γλαύκωσις, γλαυκόφθαλμος, γλαυκιδανόν, γλαύκουρις.	Dionysius Periegetes (?) γλαυκός, γλαυκιάω.

	ANTYLLOS	
	γλαύκιον.	
	LUCIAN	
	γλαυκός, γλαυκῶπις.	
	PAUSANIAS	
	γλαυκός.	
	P. ROSS-GEORG.	
	γλαυκός, γλαύκωμα.	
	POLLUX	
	γλαυκός, γλαυκιάω.	
	RUFUS	
	γλαυκός, γλαύκωμα.	
	VETTIUS VALENS	
	ἀπογλαυκόομαι.	
	ANTONINUS LIBERALIS (?)	
	γλαυκός.	
	PHILOSTRATUS	
	γλαυκός.	
3rd A.D.	AELIAN	OPPIAN OF CILICIA (?)
	γλαυκός, γλαῦκος.	γλαυκός.
	PLOTINUS	OPPIAN OF SYRIA
	γλαυκός.	γλαυκός, γλαυκιάω.
	PHILOSTRATUS JUNIOR	ORACLE
	γλαυκός, γλαυκιάω.	γλαυκῶπις.
	ANATOLIUS	ORACULA SIBYLLINA (?)
	γλαύκωσις.	γλαυκός.
	APSYRTOS	
	γλαύκωμα.	
	HELIODORUS	
	γλαυκιάω.	
	P. LEID. X	
	γλαυκίζω.	
	HIPPOLYTUS	
	γλαυκός, ὑπόγλαυκος.	
	IAMBLICHUS	
	γλαυκός, γλαυκότης.	
	CALLISTRATUS	TRYPHIODORUS (?)
	γλαυκός.	γλαυκός, γλαυκῶπις.
	P. GR. HOLM	
	γλαυκός, γλαυκισμός,	
	γλαυκόω, ἀπογλαυκόομαι.	
4th A.D.	METHODIUS	
	γλαυκίζω, γλαυκαίνω.	
	EPIPHANIUS	GREGORY NAZIAZENUS
	γλαυκός, γλαυκίζω.	γλαυκότης, γλαυκός
	HIMERIUS	γλαυκῶπις.
	γλαυκός.	ORPHICA (?)

	GREGORY OF NYSSA γλαυκόμματος. BASIL γλαυκός. ASTROLOGER ὑπόγλαυκος. PELAGONIUS (?) γλαυκός. HEPHAESTION γλαυκός.	γλαυκός, γλαυκῶπις. QUINTUS SMYRNAEUS (?) γλαυκιάω.
5th A.D.	ADAMANTIUS γλαυκός, γλαυκότης. NILUS ANCYRANUS γλαυκίζω.	COLLUTHUS γλαυκός. NONNOS γλαυκός, γλαυκῶπις, γλαυκωπός, γλαυκιάω, γλαυκόχροος. HYMN TO ISIS (?) γλαυκώλενος.

B.

1. γλαυκός:

PROSE

air - Cornutus.
Amphitrite - Callistratus.
bile - Galen.
cloak - Pollux.
colour - Plato.
dog - *Cyranides* (lect. dub.)
dye - P. Holm.
eyes -
- (animal) - Adamantius.
- (Athene) - Antoninus Liberalis, Diodorus Siculus, Lucian, Philostratus Junior.
- (bulls) - Aelian.
- (hares) - Pollux.
- (human) - Adamantius, Anatolius, Aristotle, pseudo-Aristotle, Demosthenes Ophthalmicus, Dorotheus, Galen, pseudo-Galen, Hephaestion, Herodotus, Hippocratic Corpus, Hippolytus, Iamblichus, 'Longus', Lucian, P. Mag. Par., P. Petr., P. Ross-Georg., P. Cair. Zen., Philostratus, Plotinus, Plutarch, Pollux, Rufus.
- (martichore) - Ctesias.
- (mask) - Pollux.
- (Nereids) - Himerius.
- (Tritons) - Pausanias.

fire - Plutarch.
hippocamps - Philostratus.

horse - P. Cairo. Zen.
horse-hair - Aelian.
iaspis - Epiphanius.
laurel - Himerius.
mustard - Dioscorides.
nymphs - Philostratus.
olive trees - Philostratus.
owls - Callimachus.
patina - Plutarch.
plants - pseudo-Aristotle.
rainbow - Basil.
sea - Aristotle, Himerius, Philostratus, Plutarch (quoting Homer).
ship - Philostratus.
sky - Philostratus.
stars - Himerius, Plutarch.
water - Pausanias.
wine - P. Ross-Georg.

VERSE
air - Moschus.
Amphitrite - Oppian of Cilicia, Theocritus.
beryl - Dionysius Periegetes, Tryphiodorus.
bottle - Antiphilus.
Charites - Ibycus [lect. dub.].
constellation Lepus - Aratus.
'dog' - Lycophron.
dolphin's jaws - Oppian of Cilicia.
elder - Empedocles.
emerald - Nonnos.
eyes -
  (Athene) - Anonymous, Antipater of Sidon, Euripides, Theocritus, pseudo-Theocritus.
  (divine) - Colluthus.
  (human) - Anonymous, Empedocles, Gregory Naziazenus, Hegesianax, Herodas, Nonnos, Phoenix, Xenophanes.
'favours' - Anonymous.
Galaneia - Euripides.
gemstones - Tryphiodorus.
grapes - Sophocles.
harness - Nonnos.
horses - Oppian of Syria.
Jordan - Oracula Sibyllina.
lapis lazuli - Eratosthenes.
Leucothea - Philodemus.
lions - Nonnos.
Moon - Mesomedes, Tryphiodorus.
morning - Theocritus.
Nereids - Theocritus.

olive - Bacchylides, Euripides, Limenius, Nicander, Nonnos, Oppian of Cilicia, Oracula Sibyllina, Sophocles.
olive-oil - Archestratus.
plants - Euripides.
Priapus - Anonymous.
sea - Anacreontea, Anonymous, Apollonius Rhodius, Aristophanes, Euripides, pseudo-Gregory Naziazenus, Hesiod, Homer, Meleager, Moschus, pseudo-Moschus, Nonnos, Oppian of Cilicia, Oracula Sibyllina, Orphica, Phanocles, Sophocles, Theocritus, Tryphiodorus.
sea-lions - Nonnos.
snakes - Nonnos, Pindar.
Thetis - Apollonius Rhodius, Parthenius.
tunny - Numenius.
vine - Alcaeus, Marcus Argentarius, Maccius.

2. γλαυκαῖνω:

PROSE ONLY
lepra - Methodius.

3. γλαυκάνεα:

PROSE ONLY
[sense dub.] - I.G.

4. γλαυκειοῦς:

PROSE ONLY
dress - I.G.

5. γλαυκήπορος:

VERSE ONLY
sea - pseudo-Empedocles.

6. γλαυκίζω:

PROSE ONLY
beryl - Epiphanius.
dyeing - P. Leid. X.
eyes -
(human) - Astrologers.
lepra - Methodius, Nilus Ancyranus.
marble - Strabo.

7. γλαύκινος:

PROSE ONLY
garments - Plutarch, Pollux.
mark - Plutarch.

8. γλαυκιάω:

PROSE

eyes -

(human) - Heliodorus, Philostratus Junior, Pollux.

(River Phasis) - Philostratus Junior.

VERSE

animal - Oppian of Syria.

Glaucus - Nonnos.

Laocöon - Quintus Smyrnaeus.

leopards - Oppian of Syria.

lions - Hesiod, Homer, Quintus Smyrnaeus.

topaz - Dionysius Periegetes.

Venus - pseudo-Manetho.

9. γλαυκισμός:

PROSE ONLY

dye - P. Holm.

10. γλαυκόμματος:

PROSE

human - Gregory of Nyssa.

horse - Plato.

VERSE

human - Anonymous.

11. γλαυκότης:

PROSE

air - Cornutus.

eyes -

(animal) - Aristotle.

(Athene) - Cornutus.

(horse) - pseudo-Aristotle.

(human) - Adamantius, Aristotle, pseudo-Athanasius, Galen, Iamblichus, Plutarch.

olive - Cornutus.

sea - Plutarch.

VERSE

eyes -

(owl) - Gregory Naziazenus.

12. γλαυκοφθαλμία:

PROSE ONLY

human - *Cyranides*.

13. γλαυκόφθαλμος:

PROSE ONLY

human - Astrologers, Dioscorides, Galen, Ptolemy.

14. γλαυκόχροος:

VERSE ONLY

olive - Nonnos, Pindar.

15. γλαυκόω:

PROSE ONLY

eyes -
(human) - Hippocratic Corpus, Josephus.
dye - P. Holm.

16. γλαυκώλενος:

VERSE ONLY

Tethys - *Hymn to Isis.*

17. γλαύκωμα:

PROSE ONLY

human - Agatharcides, Alexis Comicus (?), Aristotle, ps. Galen, P. Ross. Georg., Rufus.
horses - Apsyrtos.

18. γλαυκῶπις:

PROSE

Athene - Diodorus Siculus, IG, Lucian, [Ostrakon].
cat - P. Mag. Par.
colour - Cornutus.
Moon - Plutarch (quoting others).

VERSE

Athene - Aristophanes, Gregory Naziazenus, Hesiod, Homer, *Hymni Homerici*, Nonnos, 'Oracle', Orphica, Philippus, Pindar, Pisander, Sophocles, Tryphiodorus, Tyrtaeus.
Cassandra - Ibycus.
Moon - Empedocles, Euripides, Nonnos.
Muses - Orphica.
olive - Euphorio.
snakes - Pindar.
Tethys - Orphica.

19. γλαυκωπός:

PROSE

feathers - Cleitarchus.
olive - Cornutus.

VERSE
Athene - Euphorio.
olive - Nonnos.
snake - Pindar.

20. γλαυκῶσις:
PROSE ONLY
human - Antiochus, Demosthenes Ophthalmicus, Galen.

21. γλαυκῶψ:
VERSE ONLY
snakes - Pindar.

22. ἀντιγλαυκειμός:
PROSE ONLY
pre-dye - P. Leid. X. (?)

23. ἀπογλαυκόομαι:
PROSE ONLY
eyes -
(human) - Aristeas, Demosthenes Ophthalmicus, Diodorus Siculus, Plutarch, Vettius Valens.
dye - P. Holm.

24. ἀπογλαύκωσις:
PROSE ONLY
human - Dioscorides, Ptolemy.

25. ἔγγλαυκος:
PROSE ONLY
air - Diodorus Siculus.

26. ἑτερόγλαυκος:
PROSE ONLY
eyes -
(horse) - Aristotle, Pelagonius.
(human) - Aristotle.

27. ὑπόγλαυκος:
PROSE ONLY
eyes -
(human) - Astrologers, Dorotheus, Hippolytus.
(hares) - Xenophon.
leaves - Dioscorides.

C.

1.	γλαυκός	- 5th B.C. (prose) pre 7th B.C. (verse)
2.	γλαυκαίνω	- 4th-5th A.D. (prose)
3.	γλαυκάνεα	- 2nd B.C. (prose)
4.	γλαυκειοῦς	- 4th B.C. (prose)?
5.	γλαυκήπορος	- post 4th B.C. (verse)
6.	γλαυκίζω	- 1st B.C. (prose)
7.	γλαύκινος	- 1st A.D. (prose)
8.	γλαυκιάω	- 2nd A.D. (prose) pre 7th B.C. (verse)
9.	γλαυκισμός	- 3rd A.D.? (prose)
10.	γλαυκόμματος	- 5th B.C. (prose)
11.	γλαυκότης	- 5th B.C. (prose) 4th A.D. (verse)
12.	γλαυκοφθαλμία	- 1st A.D.? (prose)
13.	γλαυκόφθαλμος	- 1st A.D. (prose)
14.	γλαυκόχροος	- 5th B.C. (verse)
15.	γλαυκόω	- 5th B.C. (prose)
16.	γλαυκώλενος	- 5th A.D.? (verse)
17.	γλαύκωμα	- 5th B.C. (prose)
18.	γλαυκῶπις	- 1st B.C. (prose) pre 7th B.C. (verse)
19.	γλαυκωπός	- 4th B.C. (prose) 5th B.C. (verse)
20.	γλαυκώσις	- 1st. A.D. (prose)
21.	γλαυκώψ	— 5th B.C. (verse)
22.	ἀντιγλαυκειμός	- 3rd A.D.? (prose)
23.	ἀπογλαυκόομαι	- 3rd B.C. (prose)
24.	ἀπογλαύκωσις	- 1st A.D. (prose)
25.	ἔγγλαυκος	- 1st B.C. (prose)
26.	ἑτερόγλαυκος	- 5th B.C. (prose)
27.	ὑπόγλαυκος	- 5th B.C. (prose)

APPENDICES

A. *Adjectives ending in ωψ, ωπος*

Translators faced with the task of rendering accurately those adjectives which end in ωψ or ωπος are frequently at a loss to know whether to treat the suffix as *eye* or *face*. This uncertainty has led, in turn, to further misunderstandings about the origins of deities and their cults, or about the nature of poetic language. The two most obvious examples of this are γλαυκῶπις and οἰνωπός. On the former, compare the remarks of two commentators, M. C. Astour and H. J. Rose. Astour was clear that γλαυκῶπις had no colour-sense. "Athena herself was originally imagined as an owl—it is in this sense that her surname *glaukôpis* has to be understood: it means precisely 'owl-eyed', or 'owl-faced', or 'owl-shaped', and not 'grey-eyed', as usually translated, and she inherited it from the East, where there were many bird-goddesses."[1] Rose, on the other hand, was not in favour of this interpretation. "Γλαυκῶπις is her epithet in Homer, and is most naturally taken as meaning 'grey-eyed', as the ancients interpreted it, or else 'bright-eyed'. It is true that it can also mean 'owl-faced'...but anything like definite evidence is wanting that the goddess was ever conceived as having owl-shape, although the assertion is often and confidently made."[2]

When experts fall out there seems to be only one course of action a prudent man can take. He must examine the evidence for himself. Now, there are nearly two hundred examples of word-formations involving ωψ, ωπος, or some similar derivation, and to pursue each in its context would result in a study far beyond the scope of an appendix. I propose, therefore, to survey the terms very rapidly under the general headings EYE, FACE, and APPEARANCE, listing prose usage first, then verse, and making comment only upon those usages recorded by LSJM which seem unclear or are actually incorrect.

Eye

ἀγανῶπις, Verse: Marcellus Sidetes and genitive recorded by Hesychius with two references to eyes and one to cheeks. [ἀγλαώψ, Verse: Sophocles, *OT* 214, of a torch. Probably derived from 'eye',

as LSJM has it]. ἀγριωπός, Verse: Euripides, *HF* 990.[3] αἰγιλώπιον (an ulcer in the eye), Prose: Dioscorides. Cf. αἰγίλωψ, Celsus, Dioscorides, Galen.[4] αἰγίποψ, Prose: *EM* 28.19, Macedonian name for an eagle, presumably because of its yellowish eyes. Cf. αἰγωπός, Prose: Aristotle. αἶθοψ, Verse: Homer, of wine, called fiery-eyed because it gives a man bloodshot eyes when he is drunk.[5] Cf. Agathias, αἴθοπα βασκανίην (*A.G.* 5.218), fiery-eyed malignancy, from βασκαίνω, bewitch by the Evil-Eye. Hesiod: *Opera* 363, fiery-eyed hunger? (Starvation turns the face pale). Cf., perhaps, Nonnos 15.7, fiery-eyed thirst. αἱματωπός, Verse: Euripides. Cf. αἱματώψ, Verse: Euripides, (conjectured reading). αἱμωπός, Prose: Sextus Empiricus; Verse: Leonidas of Tarentum (A.G. 6.35). ἀλαῶπις, Verse: Empedocles. Cf. ἀλαωπός, Verse: Nonnos, from ἀλαόω, make blind. ἀμβλυωπός, Prose: Aristotle; Verse: *Epigrammata Graeca* 459 (ed. Kaibel).[6] Cf. ἀμβλωπός, Verse: Aeschylus, Critias.[7] ἀμβλώψ, Verse: Euripides.[8] ἀνεπόψιος, Suidas. ἄνθρωπος presents a problem which has not yet been solved. See Chantraine: *Dictionnaire étymologique* s.v. ἀντωπός, Verse: Euripides,[9] Strato (*A.G.* 12.196). Cf. Ecphantus, of an eagle looking into the sun, and ἀντῶπις, Nonnos 6.76, of the Moon. ἀστερωπός, Verse: Aeschylus, Euripides. Cf. *Phoenissae* 129 and ἀστρωπός, *HF* 406. αὐλωπός, Verse: Oppian of Cilicia. The fish seems to have been named after its enormous eyes; vide Aelian: *N.A.* 13.17.

βλοσυρώπης, Verse: Oppian of Syria, *Cynegetica* 1.144, describing calves. Unlikely, therefore, to mean *grim-looking* as LSJM has it. βλοσυρῶπις, Verse: *Iliad* 11.36, of the Gorgon whose principal feature was her petrifying *eye*. βλοσυρωπός, Verse: Dionysius Periegetes, *Orbis Descriptio* 123, of a snake. Snakes were usually noted for their glittering eyes. M. Leumann proposed a derivation from *gʷḷtur = Latin *voltur.*[10] Perhaps it has the ambiguous sense of the English *fearful*, (a) full of fear itself, hence *wild* (which could apply to the calves) and (b) causing others to be full of fear. βοῶπις, Verse: Homer (where no one has ever suggested that Hera was ox-faced),[11] Bacchylides, Pindar, Eupolis. Cf. βόωψ, the name of a fish with large eyes, Aristophanes of Byzantium apud Athenaeum 287a. [γαλερωπός, Prose: Bekker, *Anecdota Graeca* 1.229, "γαλερὸν καὶ ἐπιτερπὲς βλέπων." This is obviously connected with sight, but may mean simply pleasant in appearance.] γογγυλωπός, Hesychius. LSJM gives the meaning *round-faced, stout-looking,* but Hesychius's definitions are στρογγύλα which means simply *round*, εὔτονα, with

which cf. Aetius 7.115 (eye-salve), and γοργά, usually used of eyes. I am inclined, therefore, to translate γογγυλωπός as *round-eyed*. γοργῶπις, Verse: Sophocles. γοργωπός, Prose: Cornutus; Verse: Aeschylus, Euripides.[12] γοργώψ, Verse: Euripides.[13] Cf. Hesychius, "γοργώφατο = πικρὸν ἔβλεφε." [δεινωπός, Verse: Hesiod, *Scutum* 250. It is difficult to know whether this applies to the faces or to the eyes of the Erinyes. In context, perhaps reference to the latter is preferable. Cf. δεινώψ, Verse: Sophocles, *OC* 84, of which the same may be said.] ἐγχελυωπός, Prose: Lucian, *Vera Historia* 1.35, not eel-faced as in LSJM because the Ταριχᾶνες are also described as καραβοπρόσωπον and it is improbable that Lucian coined two different extravagances for the same face alone. ἑλίκωψ, Verse: Homer, Hesiod, Sappho, Pindar.[14] ἐριῶπις, Verse: *Hom.Epigr.* Cf. Maximus Astrologus. εὐρωπός, Verse: Euripides, Oppian of Cilicia, in the sense of 'broad', that is, wide to the sight. Hesychius glossed εὐρωπόν by σκοτεινόν and πλατύ, the former being a puzzle without its context. εὐῶπα, Hesychius: εὐόφθαλμον, φίλον. εὐωπός, Prose: Aristotle, Aelian, and probably Maximus of Tyre; Verse: Oppian of Cilicia.[15] ἡμεράλωψ, Prose: Demosthenes Ophthalmicus apud Galen.[16] [Θαλερῶπις, Verse: Agathias (*A.G.* 7.204), of dawn. Reference to the eye makes somewhat happier sense than that to face or aspect.]. Θυμάλωψ, Prose: Lucian; Verse: Aristophanes, Strattis. See the remarks of Chantraine: *Dictionnaire étymologique* s.v.

καλυκωπός, Hesychius: εὐόφθαλμος. Likewise, perhaps, καλυκῶπις, Verse: Homeric Hymns, Orphic Hymn, and fr., *P.Ox.* 1361 fr. 5 i 11, since there is nothing to indicate that it need not be taken that way except *Hom. Hymn Dem.* (2).8 which should almost certainly refer to flower-like appearance. *Ibid.* 420, however, and Orphic fr. 49 ii 23 (Kern) refer to Ocyrhoë, a stream personified, which may have brilliant 'eyes' like those of a flower but is unlikely to be considered flower-*shaped*. κατόφιος, Verse: Apollonius Rhodius, Euripides. κελαινῶπις, Verse: Pindar, *Pythian* 1.7, describing a mist which seals up the eyes of Zeus's eagle. Perhaps the notion of eyes closing in sleep is foreshadowed by the adjective. κνύζωψ, a kind of vegetable, according to Hesychius. Bear in mind, perhaps, κνυζός, 'blear-eyed'? κοιλώπης, Verse: Nicander. κυανώπης, Verse: Oppian of Syria. κυανῶπις, Verse: Hesiod, Bacchylides, Aeschylus.[17] [κυανωπός, Verse: *Trag. Adesp.* 541.3 and Agathias (*A.G.* 4.3.82). I am inclined to connect both with the eye rather than with the face.

In the first, κυανωπὸν σέλας balances χρυσωπὸν νώτισμα which is likely to be a reminiscence of the peacock's wing. Plutarch commented, "καὶ ἡ Σφὶγξ εἶχεν ἐπαγωγὸν τὸ ποίκιλμα τοῦ πτεροῦ." Consequently, the notion of 'eye' can be carried over into κυανωπός which is the light of an Iris, "ὥς τις Ἶρις ἀνηύγει σέλας." The second described the lands of the West and may have a double reference to eyes, (a) the place where the Sun sets brings night during which one's eyes grow dark with sleep, and (b) the location of dark-eyed peoples, e.g. Italians, Spaniards.][18] Κύκλωψ, see the remarks of Chantraine: *Dictionnaire étymologique* s.v. Κύκνοψις, Verse: Anon apud *A.G.* 11.345, more likely to be a reference to the eyes than to the face. κυνῶπις, Verse: Homer; cf. κυνώπης. Hesychius glossed the Homeric κυνώπιδος by "ἀναιδοῦς ὄμμασι." Cf. Ibid. κυνοφθαλμίζεται = ἀναιδῶς ἐμβλέπει. Cratinus fr. 241 seems to be a perversion of κυανῶπις, as Edmonds noted.[19]

λευκωπίας, Hesychius: λευκὸς ὀφθῆναι. λιθώπης, Verse: Tryphiodorus. λιθῶπις, Verse: Nonnos. λυσσῶπις, Verse: Orphic *Argonautica* 979, probably referring to the eye of a puppy. Cf. κυνῶπις, and σκυλάκιον, a type of eye-salve (Galen). μαρμαρωπός, Verse: Euripides. μαρμαρῶπις, Prose: Trypho grammaticus; Verse: Lycophron, and note the Scholiast's comment ad locum. μεγαλωπός, Verse: Oppian of Syria. μονώψ, Prose: Aelian; Verse: Aeschylus, Euripides, and also, presumably, Callimachus. μορμυρωπός, Prose: Artemidorus, *Oneirocriticon* 2.36, but see the note of A. J. Festugière ad locum (Paris 1975). μυριωπός, Verse: Aeschylus. μύωψ, Prose: Aristotle, pseudo-Aristotle, Alexander of Aphrodisias; Verse: Aeschylus.[20] νυκτερωπός, ('seeing' or 'seen by night'), Prose: Plutarch; Verse: Euripides. Cf. νυκτωπός, Euripides and νύκτωψ, Hippocrates, Galen, Pliny, Aetius, Ulpian, etc.[21] οἰνωπός: for a full discussion, see supra - . ὀξυωπής, Prose: Aristotle, Lucian, Philo, Marcellinus. Cf. ὀξυωπός, Prose: Aristotle. Cf. ὀξυωπίας, Pollux.

παραβλώψ, Prose: Lucian, Aelian, Cornutus, P. Lond.; Verse: Homer, Automedon (*A.G.* 11.361). πολυωπής, Prose: Eunapius. πολυωπός, figuratively of the meshes of a net, Verse: Homer, Oppian of Cilicia, Tryphiodorus. Cf. πολυώψ, Verse: Paulus Silentiarius (*A.G.* 6.65 and 9.765). πρόσωπος, see Chantraine: *Dictionnaire étymologique* s.v. πυρώπης, Verse: Oppian of Syria. Hence, probably also πυρῶπις, Verse: Nonnos, and πυρωπός, Prose: Philo, *De Specialibus Legibus* 3.193; Verse: Aeschylus, *PV* 667, although this last could refer only to the appearance of the thunderbolt.[22]

σκολιωπός, Verse: pseudo-Manetho. στρογγυλώψ, Servius ad Vergilium, *Aeneid* 8.649.

ταναῶπις, Verse: Empedocles. τετραελίκωπες, Hesychius: "τέσσαρας ὀφθαλμοὺς ἔχουσι ναῦς." τηλῶπις, Verse: Orphic *Argonautica* 900, and perhaps 1188, although Abel printed Hermann's τήλιστον. Cf. τηλωπός, Verse: Sophocles, *Supp. Epigr.* τυφλῶψ, Prose: Aelian; Verse: Nicander. ὑπώπιον, Verse: Aristophanes, Euripides. Although the word refers to the area beneath the eye, it was used much as the English 'black eye.' [Cf., however, ὑπωπίς, Hesychius = Θαψία, (*Thapsia garganica*). Pliny said that this plant was poisonous, the effects even of its smell inducing tumescence of the body and red blotches upon the face]. ὑσταλωπιᾷ, Hesychius = νυστάζει. φαιδρωπός, Verse: Aeschylus. φαινῶπις, Verse: pseudo-Manetho, = φαῖνοψ, probably bright-eyed light. φλογωπός, Verse: Aeschylus, *PV* 498, the context suggests vision. Therefore probably *Ibid.* 255 and φλογώψ, *Ibid.* 791. χρυσῶπις, Verse: Aristophanes, *Thesm.* 321. Artemis is linked with Athene who, in verse 317, is called γλαυκῶπις, so it is probable that χρυσῶπις was meant to be a notion parallel with it. *Titanomachia* fr. 4 described fish and Athenaeus, who recorded the fragment, went on immediately to talk about Tunny (παρατεθεισῶν οὖν ἀμιῶν ἔφη τις) which do have yellow eyes.

Face

αἱμωπός, Prose: Philo, *Legatio ad Gaium* 266, probably a reference to a flushed complexion. ἀντωπός, Prose: Lucian, *Imagines* 6, the front part of the face; Verse: Meleager (*A.G.* 16.134), full in the face. γραιωπίας, Hesychius: γραίᾳ ἐμφερής, presumably of the face rather than of the eyes. δολιχωπά, Hesychius: μακρά. ἐρεβῶπις, Verse: Orphic *Lithica* 544. The natural sequence of thought suggests that this refers to the face. εὐῶψ, Verse: Sophocles, *Antigone* 530 and, probably, *OT* 189. [κελαινώπας, Verse: Sophocles, *Ajax* 955, of the soul. The context suggests face.] κελαινώψ, Verse: Pindar, *Pythian* 4.212. κριωπός, Verse: Tragicus apud Photium, *Lexicon* svv Ἄνυδρα δάπεδα. The reference in *P. Ox.* 1801.26 is probably to a kind of vetch. κυνῶπις, Verse: Euripides, *Orestes* 260, the Erinyes who are envisaged as dogs in the style of Aeschylus's Furies. Perhaps also *Electra* 1252. [λιπαρώψ, Verse: Philoxenus, of a table.] μορμυρωπός, Verse: Aristophanes, *Ranae* 925. The context suggests 'face', but

'appearance' would be quite possible. παρθενωπός, Verse: Euripides, *Electra* 949.[23] ταυρῶπις, Prose: *P. Ox.* 1380.107. χρυσωπός, Prose: Plutarch, *Moralia* 977f.

APPEARANCE

αἰθωπός, Verse: pseudo-Manetho, 4.166, of a path or journey. αἱμάλωψ, Prose: Hippocrates, Aretaeus, of a mass of blood. Cf. αἱμωπός, Prose: Paulus Aegineta, of faeces. ἀντωπός, Verse: Oppian of Cilicia, *Halieutica* 5.6, of the gods. Cf. Agathias (*A.G.* 10.14), of the sea withdrawing, opposite. ἀργωπός, Prose: Theophrastus, of leaves; Verse: Nicander. ἀρρενωπός, Prose: Aristotle, Plato, Lucian, etc., of manly appearance. βορβορωπόν, Hesychius: αἰσχρὸν, βορβόρῳ ἐμφερές. δολῶπις, Verse: Sophocles, *Trachiniae* 1050. ἑσωπή, Verse: Oppian of Cilicia, *Halieutica* 4.358. Cf. εὐωπός, Verse: Euripides, Dionysius Periegetes and, probably, Babrius. θεμερῶπις, Verse: Aeschylus, *PV* 134 and, probably, Empedocles fr. 122.2. [ἱλαρῶπις. I am unable to find that LSJM's reference to *P. Mag. Lond.* 121.382 is correct, as there does not appear to be room for ἱλαρῶπις in this line.] χαλυκῶπις, Verse: *Hom. Hymn Demeter* (2). 8. κεραώψ, Prose: Maximus Astrologus, of the Moon. This is one of the few compounds which might refer to shape instead of to general appearance. κέρκωψ, see Chantraine: *Dictionnaire étymologique* s.v. κοιλῶπις, Verse: Antipater of Sidon (*A.G.* 6.219), meaning hollow. Cf. κοιλωπός, Verse: Euripides, *IT* 263. μελανῶπις, Verse: Marcellus Sidetes, *De Piscibus* 64, of putrefaction. ξανθωπός, Verse: Oppian of Syria, Nonnos. πυρωπός, Prose: Plutarch, *Moralia* 648a, Pliny: *N.H.* 34.20 (94). ῥοδῶπις, Verse: Nonnos, 10.176. Cf. ῥοδωπός, Prose: Dioscorides, 5. 113. στερεωπός, Verse: Empedocles, fr. 21.6, of shape. ταυρῶπις, Verse: Nonnos, 32.69, more likely a reference to appearance than to face. Cf. ταυρωπός, Prose: Cornutus, 22; Verse: Ion Lyricus, fr. 9 and Orphic *Hymn* 30.4, both of Dionysus.[24] τερατωπός, Verse: Homeric Hymn Pan (19).36. ὑαλῶπις, Verse: Orphic *Lithica* 613, of the iaspis. φλογωπός, Prose: Eustathius 58.14. χαριτώπης, Verse: Orphic *Hymn* 17.5. Cf. χαριτῶπις, *I.G.* 3.1376.7. χρυσωπός, Prose: Plutarch, Sulla 6, Aelian, *N.A.* 15.8 and probably Cornutus 32; Verse: Euripides, *Electra* 740. Cf. χρυσώψ, Verse: Euripides, *Bacchae* 553, of the thyrsus.

It is evident from this survey that by far the most common reference of adjectives ending in ωψ or ωπος is that to eyes rather

than those to face or aspect and, in consequence, any translation which varies from this should have good reason for doing so.

B. *Hesychius: ἀγλαυκός*

† ἀγλαυκόν = ἁλυκόν.

There is doubt over the authenticity of this word, although LSJM records it without comment. Γλαυκή is used once or twice, as a noun, to refer to the sea,[25] and γλαυκός, the adjective, is frequently applied to it. When combined with ἀ- privative, therefore, it should mean something like *not-blue, not-seawater,* (i.e. freshwater), *not-salty.* Hesychius's definition, however, treats it as though it were an extension of the positive adjective γλαυκός. One must ask oneself if ἀγλευκός is not a more likely form of the word since this, like the fairly common ἀγλευκής, could certainly mean *salty,* i.e. sour or not-sweet.[26]

C. *The Rainbow*

The rainbow is a phenomenon produced by light playing on drops of water, thus causing one to see the colours red, orange, yellow, green, blue, and violet. These are not actually separate but merge into one another; it is the eye of the observer which divides them into different bands. It should be remarked further that the appearance of colours in a rainbow is not static but may change and different rainbows may present different appearances to an onlooker. Hence it is fruitless to demand uniformity in the description of rainbows. The author will describe what he himself has seen, and so the texts which follow are a mixture of personal observation and scientific theory.[27]

(i) Homer: *Iliad* 11.26-7, on the shield of Achilles.

κυάνεοι δὲ δράκοντες ὀρωρέχατο προτὶ δειρὴν
τρεῖς ἑκάτερθ', ἴρισσιν ἐοικότες.[28]

(ii) *Ibid.* 17.547-8.

ἠΰτε πορφυρέην ἶριν θνητοῖσι τανύσσῃ
Ζεὺς ἐξ οὐρανόθεν.[29]

(iii) Xenophanes, fr. 32 [Diels]

ἥν τ' Ἶριν καλέουσι, νέφος καὶ τοῦτο πέφυκε,
πορφύρεον καὶ φοινίκεον καὶ χλωρὸν ἰδέσθαι.

(iv) Anaximenes. [E scholiis Arati ad 940, ed. Maass].

Ἀναξιμένης δὲ τὴν ἶρίν φησι γίνεσθαι ἡνίκα ἂν ἐπιπεσῶσιν αἱ τοῦ ἡλίου αὐγαὶ εἰς παχὺν καὶ πυκνὸν ἀέρα· ὅθεν τὸ μὲν πρότερον αὐτοῦ τοῦ ἡλίου φοινικοῦν φαίνεται διακαιόμενον ὑπὸ τῶν ἀκτίνων, τὸ δὲ μέλαν καταχρατούμενον ὑπὸ τῆς ὑγρότητος.

(v) Aristotle: *Meteorologica* 3.2 (371b.33 - 372a.11).

οὐδὲ δὴ δυοῖν πλείους ἴριδες οὐ γίγνονται ἅμα. τούτων δὲ τρίχρως μὲν ἑκατέρα, καὶ τὰ χρώματα ταὐτὰ καὶ ἴσα τὸν ἀριθμὸν ἔχουσιν ἀλλήλλαις, ἀμυδρότερα δ' ἐν τῇ ἐκτὸς καὶ ἐξ ἐναντίας κείμενα κατὰ τὴν θέσιν· ἡ μὲν γὰρ ἐντὸς τὴν πρώτην ἔχει περιφέρειαν τὴν μεγίστην φοινικίαν, ἡ δ' ἔξωθεν τὴν ἐλαχίστην μὲν ἐγγύτατα δὲ πρὸς ταύτην, καὶ τὰς ἄλλας ἀνάλογον. ἔστι δὲ τὰ χρώματα ταῦτα ἅπερ μόνα σχεδὸν οὐ δύνανται ποιεῖν οἱ γραφεῖς· ἔνια γὰρ αὐτοὶ κεραννύουσι, τὸ δὲ φοινικοῦν καὶ πράσινον καὶ ἁλουργὸν οὐ γίγνεται κεραννύμενον· ἡ δὲ ἶρις ταῦτ' ἔχει τὰ χρώματα. τὸ δὲ μεταξὺ τοῦ φοινικοῦ καὶ πρασίνου φαίνεται πολλάκις ξανθόν.

(vi) *Ibid.* 3.4 (373b.32 - 374a.11).

ὅτι μὲν οὖν ἀνάκλασις ἡ ἶρις τῆς ὄψεως πρὸς τὸν ἥλιόν ἐστι, φανερόν· διὸ καὶ ἐξ ἀναντίας ἀεὶ γίνεται, ἡ δ' ἅλως περὶ αὐτόν· καίτοι ἄμφω ἀνακλάσεις· ἀλλ' ἥ γε τῶν χρωμάτων ποικιλίᾳ διαφέρει· ἡ μὲν γὰρ ἀφ' ὕδατος καὶ μέλανος γίνεται ἀνάκλασις καὶ πόρρωθεν, ἡ δ' ἐγγύθεν καὶ ἀπ' ἀέρος λευκοτέρου τὴν φύσιν. φαίνεται δὲ τὸ λαμπρὸν διὰ τοῦ μέλανος ἢ ἐν τῷ μέλανι (διαφέρει γὰρ οὐθέν) φοινικοῦν. ὁρᾶν δ' ἔξεστι τό γε τῶν χλωρῶν ξύλων πῦρ, ὡς ἐρυθρὰν ἔχει τὴν φλόγα διὰ τὸ τῷ καπνῷ πολλῷ μεμῖχθαι τὸ πῦρ λαμπρὸν ὂν καὶ λευκόν· καὶ δι' ἀχλύος καὶ καπνοῦ ὁ ἥλιος φαίνεται φοινικοῦς. διὸ ἡ μὲν τῆς ἴριδος ἀνάκλασις, ἡ μὲν πρώτη τοιαύτην ἔχειν φαίνεται τὴν χρόαν (ἀπὸ ῥανίδων γὰρ μικρῶν γίνεται ἡ ἀνάκλασις), ἡ δὲ τῆς ἅλω οὔ. περὶ δὲ τῶν ἄλλων χρωμάτων ὕστερον ἐρῶμεν.

(vii) *Ibid.* 3.4 (374b.7 - 375a.29).

ὅτι δὲ τὸ χρῶμα τοιοῦτον, ἅμα δῆλον ἔσται καὶ περὶ τῶν ἄλλων χρωμάτων τῆς φαντασίας, ἐκ τῶνδε. δεῖ γὰρ νοήσαντας, ὥσπερ εἴρηται, καὶ ὑποθεμένους πρῶτον μὲν ὅτι τὸ λαμπρὸν ἐν τῷ μέλανι ἢ διὰ τοῦ μέλανος χρῶμα ποιεῖ φοινικοῦν, δεύτερον δ' ὅτι ἡ ὄψις ἐκτεινομένη ἀσθενεστέρα γίγνεται καὶ ἐλάττων, τριτὸν δ' ὅτι τὸ μέλαν οἷον ἀπόφασίς ἐστιν· τῷ γὰρ ἐκλείπειν τὴν ὄψιν φαίνεται μέλαν· διὸ τὸ πόρρω πάντα μελάντερα φαίνεται, διὰ τὸ μὴ διικνεῖσθαι τὴν ὄψιν....... ἡ μὲν οὖν πρώτη τὴν ἔξω φοινικῆν ἔχει· ἀπὸ μεγίστης γὰρ περιφερείας πλείστη προσπίπτει ὄψις πρὸς τὸν ἥλιον, μεγίστη δ' ἡ ἔξω· ἡ δ' ἐχομένη καὶ ἡ τρίτη ἀνάλογον. ὥστ' εἰ τὰ περὶ τῶν χρωμάτων τῆς φαντασίας εἴρηται καλῶς, ἀνάγκη τρίχρων τε εἶναι αὐτὴν καὶ τούτοις τοῖς χρώμασι κεχρῶσθαι μόνοις. τὸ δὲ ξανθὸν φαίνεται διὰ τὸ παρ' ἄλληλα φαίνεσθαι. τὸ γὰρ φοινικοῦν παρὰ τὸ πράσινον

λευκὸν φαίνεται. σημεῖον δὲ τούτου· ἐν γὰρ τῷ μελαντάτῳ νέφει μάλιστα ἄκρατος γίγνεται ἶρις· συμβαίνει δὲ τότε ξανθότερον εἶναι δοκεῖν τὸ φοινικοῦν. ἔστι δὲ τὸ ξανθὸν ἐν τῇ ἴριδι χρῶμα μεταξὺ τοῦ τε φοινικοῦ καὶ πρασίνου χρώματος. διὰ τὴν μελανίαν οὖν τοῦ κύκλῳ νέφους ὅλον αὐτοῦ φαίνεται τὸ φοινικοῦν λευκόν· ἔστι γὰρ πρὸς ἐκεῖνα λευκόν. καὶ πάλιν ἀπομαραινομένης τῆς ἴριδος, ὅταν λύηται τὸ φοινικοῦν· ἡ γὰρ νεφέλη λευκὴ οὖσα, προσπίπτουσα παρὰ τὸ πράσινον, μεταβάλλει εἰς τὸ ξανθόν. μέγιστον δὲ σημεῖον τούτων ἡ ἀπὸ τῆς σελήνης ἶρις· φαίνεται γὰρ λευκὴ πάμπαν. γίγνεται δὲ τοῦτο ὅτι ἔν τε τῷ νέφει ζοφερῷ φαίνεται καὶ ἐν νυκτί. ὥσπερ οὖν πῦρ ἐπὶ πῦρ, μέλαν παρὰ μέλαν ποιεῖ τὸ ἠρέμα λευκὸν παντελῶς φαίνεσθαι λευκόν· τοῦτου δ' ἐστὶν τὸ φοινικοῦν. γίγνεται δὲ τοῦτο τὸ πάθος καταφανὲς καὶ ἐπὶ τῶν ἀνθῶν· ἐν γὰρ τοῖς ὑφάσμασιν καὶ ποικίλμασιν ἀμύθητον διαφέρει τῇ φαντασίᾳ ἄλλα παρ' ἄλλα τιθέμενα τῶν χρωμάτων, οἷον καὶ τὰ πορφυρᾶ ἐν λευκοῖς ἢ μέλασιν ἐρίοις, ἔτι δ' ἐν αὐγῇ τοιᾳδὶ ἢ τοιᾳδί· διὸ καὶ οἱ ποικιλταί φασι διαμαρτάνειν ἐργαζόμενοι πρὸς τὸν λύχνον πολλάκις τῶν ἀνθῶν, λαμβάνοντες ἕτερα ἀνθ' ἑτέρων.[30]

(viii) Metrodorus. [Apud Diels: *Doxographi Graeci,* 231-2].

Μητρόδωρος δὲ τὴν ἶριν αἰτιολογῶν φησίν· ὅταν ἐξ ἐναντίας τῷ ἡλίῳ ἐνσταθῇ νέφος πεπυκνωμένον, τηνικαῦτα ἐμπιπτούσης τῆς αὐγῆς τὸ νέφος κυανοῦν διὰ τὴν κρᾶσιν γίνεται τὸ δὲ περιφαινόμενον τῇ αὐγῇ φοινικοῦν, τὸ δὲ ὂν κάτω λευκόν.

(ix) Epicurus: *Epistula ad Pythoclem* 12 (109-110).

Ἶρις γίνεται κατὰ πρόσλαμψιν τοῦ ἡλίου πρὸς ἀέρα ὑδατοειδῆ, ἢ κατὰ πρόσφυσιν ἰδίαν τοῦ τε φωτὸς καὶ τοῦ ἀέρος, ἢ τὰ τῶν χρωμάτων τούτων ἰδιώματα ποιήσει εἴτε πάντα εἴτε μονοειδῶς, ἀφ' οὗ πάλιν ἀπολάμποντος τὰ ὁμοροῦντα τοῦ ἀέρος χρῶσιν ταύτην λήψεται, οἵαν θεωροῦμεν, κατὰ πρόσλαμψιν πρὸς τὰ μέρη. τὸ δὲ τῆς περιφερείας τούτου φάντασμα γίνεται διὰ τὸ διάστημα πάντοθεν ἴσον ὑπὸ τῆς ὄψεως θεωρεῖσθαι, ἢ ἐν τοῖς νέφεσιν ἀπὸ τοῦ αὐτοῦ ἀέρος· ἀποφερομένων ἀτόμων περιφέρειάν τινα καθίεσθαι τὴν σύγκρισιν ταύτην.

(x) Alexander of Aphrodisias: *In Aristotelis Meteorologicorum libros Commentaria* 3.4. [Ed. M. Hayduck, (Berlin 1899), 152 - 162].

This passage is too long for complete quotation here, but is a very detailed discussion of Aristotle's theories about the rainbow. I have indicated only the sections which deal with its colours, the principal being ἀλουργός, πράσινος, and φοινικοῦς. Blue appears at the end of the second section, as a source of or link between the main colours.

πράσινον δὲ καὶ ἀλουργὸν αὐτοφυῆ μὲν ἥ τε χρυσόκολλα καὶ τὸ ὄστρειον, αἷμα ὂν καὶ τοῦτο πορφύρας τῆς θαλασσίας, σκευαστὰ δὲ πράσινον μὲν ἐκ κυανοῦ τε καὶ ὠχροῦ, ἀλουργὸν δὲ ἔκ τε κυανοῦ καὶ φοινικοῦ· ἀντιλάμψαντος γοῦν κυανῷ

ὠχροῦ μὲν τὸ πράσινον ἀποτελεῖται, φοινικοῦ δὲ τὸ ἁλουργόν. (p. 161).....πάλιν δ' αὖ τὸ πράσινον τοῦ ἁλουργοῦ ἐγγυτέρω τοῦ λευκοῦ, εἴ γε τῷ μὲν ἐξ ὠχροῦ ἡ γένεσις, τῷ δὲ ἁλουργῷ ἐκ φοινικοῦ (κοινὸν γὰρ ἡ κυανὸς αὐτοῖς), μᾶλλον δὲ λευκὸν τὸ ὠχρὸν ἢ τὸ φοινικοῦν. (p. 162).

(xi) G. S. Merker: "The Rainbow mosaic at Pergamon and Aristotelian Colour Theory," *AJA* 71 (1967), 81.

The rainbow is carefully executed in thirty very even rows of closely placed tesserae, forming ten bands of different colours, each band made up of three rows. The colours of the bands shade gradually into one another, imitating the blurring between colours of the natural rainbow. The innermost band of the border is a strong dark red, followed by medium red and three bands of salmon colour gradually diminishing in value. There follow a very pale yellow band, a slightly darker yellow, a pale yellowish-green, a slightly darker green, and finally a still deeper green with a trace of blue.

(xii) Ps. Plutarch. [Apud Diels: *Doxographi Graeci,* 372-3].

ὅταν οὖν ὁ ἥλιος γένηται ἐν δυσμαῖς, ἀνάγκη πᾶσαν ἶριν ἄντικρυς ἡλίου φαίνεσθαι· τότε γὰρ ἡ ὄψις προσπεσοῦσα ταῖς ῥανίσι ἀνακλᾶται, ὥστε γίνεσθαι τὴν ἶριν. εἶσι δὲ αἱ ῥανίδες οὐ σχήματος μορφαὶ ἀλλὰ χρώματος. καὶ ἔχει τὸ μὲν πρῶτον φοινικοῦν, τὸ δὲ δεύτερον ἁλουργὲς καὶ πορφυροῦν, τὸ δὲ τρίτον κυανοῦν καὶ πράσινον. μήποτε τὸ μὲν φοινικοῦν, ὅτι ἡ λαμπρότης τοῦ ἡλίου προσπεσοῦσα καὶ ἡ ἀκραιφνὴς λαμπηδὼν ἀνακλωμένη ἐρυθρὸν ποιεῖ καὶ φοινικοῦν τὸ χρῶμα. τὸ δὲ δεύτερον μέρος ἐπιθολούμενον καὶ ἐκλυόμενον μᾶλλον τῆς λαμπηδόνος διὰ τῆς ῥανίδας ἁλουργές· ἄνεσις γὰρ τοῦ ἐρυθροῦ τοῦτο. ἔτι δὲ μᾶλλον ἐπιθολόμενον τὸ δροσίζον εἰς τὸ πράσινον μεταβάλλει. ἔστι δὲ τοῦτο δοκιμάσαι δι' ἔργων· εἰ γάρ τις ἄντικρυς στᾶς τοῦ ἡλίου λάβῃ ὕδωρ καὶ πυτίσῃ, αἱ ῥανίδες ἀνάκλασιν πρὸς τὸν ἥλιον λάβωσιν, εὑρήσει γινομένην ἶριν. καὶ οἱ ὀφθαλμιῶντες τοῦτο πάσχουσιν, ὅταν εἰς τὸν λύχνον ἀποβλέψωσιν.

(xiii) Cicero: *De Natura Deorum* 3.20 (51).

Arcus enim ipse e nubibus efficitur quodam modo coloratis.

(xiv) Vergil: *Aeneid* 4.700-1.

Ergo Iris croceis per caelum roscida pinnis,[31]
mille trahens varios adverso sole colores.

(xv) *Ibid.* 5.85-9.

[Lubricus anguis]
septem ingens gyros, septena volumina traxit,

amplexus placide tumulum lapsusque per aras,
caeruleae[32] cui terga notae maculosus et auro
squamam incendebat fulgor, ceu nubibus arcus
mille iacit varios adverso sole colores.

(xvi) Ovid: *Metamorphoses* 6.61-7.

Illic et Tyrium quae purpura sensit aenum
texitur et tenues parvi discriminis umbrae;
qualis ab imbre solent percussis solibus arcus
inficere ingenti longum curvamine caelum;
in quo diversi niteant cum mille colores,
transitus ipse tamen spectantia lumina fallit;
usque adeo, quod tangit, idem est; tamen ultima distant.

(xvii) Seneca: *Quaestiones Naturales* 1.3 sq.

[The passage is too long to quote in extenso. At 1.3.4 Seneca wrote, "videmus in eo aliquid flammei, aliquid lutei, aliquid caerulei et alia in picturae modum subtilibus lineis ducta.]

(xviii) *Apocalypse* 4.3.

ἶρις κυκλόθεν τοῦ θρόνου ὅμοιος ὁράσει σμαραγδίνῳ.

(xix) Tertullian: *De Corona* 15.1.

At alius iridis ambitu ornatur caelesti prsaio.

(xx) Basil: *Epistulae* 38.5. [= Migne, *P.G.* 32.333]

ἤδη ποτὲ τοῦ ἐν τῇ νεφέλῃ τόξου τὴν λαμπηδόνα κατὰ τὸ ἔαρ τεθέασαι· ἐκεῖνο λέγω τὸ τόξον, ὅπερ ὁ κοινὸς λόγος ἶριν εἴωθεν ἐπονομάζειν· ὅ φασι οἱ περὶ ταῦτα δεινοὶ τότε συνίσταθαι, ὅταν ἀνακεκραμμένη τις ᾖ πρὸς τὸν ἀέρα νοτὶς τῆς τῶν πνευμάτων βίας τὸ ἐν τοῖς ἀτμοῖς ὑγρὸν καὶ παχὺ νεφῶδες ἤδη γενόμενον εἰς ὑετὸν ἀποθλιβούσης. συνίστασθαι δὲ λέγουσιν οὕτως· ἐπειδὰν ἡ τοῦ ἡλίου ἀκτὶς κατὰ τὸ πλάγιον ὑποδραμοῦσα τὸ πυκνόν τε καὶ συνηρεφὲς τῆς νεφώσεως, εἶτα κατὰ τὸ εὐθὺ νέφει τινὶ τὸν ἴδιον κύκλον ἐναπερείσηται, οἷόν τις καμπὴ καὶ ἐπάνοδος τοῦ φωτὸς πρὸς ἑαυτὸ γίνεται, τῆς αὐγῆς πρὸς τὸ ἔμπαλιν ἀπὸ τοῦ ὑγροῦ καὶ τού στίλβοντος ἀναλυούσης. ἐπειδὴ γὰρ φύσις ἐστὶ ταῖς φλογώδεσι μαρμαρυγαῖς, εἴ τινι λείῳ προσπέσοιεν, πρὸς ἑαυτὰς πάλιν ἐπανακλᾶσθαι, κυκλοτερὲς δὲ τοῦ ἡλίου τὸ σχῆμα, τὸ ἀνὰ τῆς ἀκτῖνος ἐν τῷ ὑγρῷ τε καὶ λείῳ τοῦ ἀέρος γινόμενον, ἐξ ἀνάγκης κατὰ τὸ σχῆμα τοῦ ἡλιακοῦ κύκλου, καὶ ὁ παρακείμενος τῷ νέφει ἀὴρ ἀνὰ τῆς ἀποστιλβούσης αὐγῆς περιγράφεται· αὐτὴ τοίνυν ἡ αὐγὴ καὶ συνεχὴς ἐστὶ πρὸς ἑαυτὴν καὶ διῄρηται. πολύχροος γάρ τις οὖσα καὶ πολυειδής,

ἀφανῶς τοῖς ποικίλοις ἄνθεσι τῆς βαφῆς πρὸς ἑαυτὴν κατακιρνᾶται, τῶν ἑτεροχρούντων τὴν πρὸς ἄλληλα συμβολήν, ἐκ τῶν ὄψεων ἡμῶν κατὰ τὸ λεληθὸς ὑποκλέπτουσα· ὡς μὴ ἂν ἐπιγνωσθῆναι τοῦ γλαυκοῦ[33] ἐπὶ τὸ πυραυγὲς τὸν ἀνὰ μέσου τόπον τὸν μηνύοντα δι' ἑαυτοῦ καὶ ὁρίζοντα τὴν τῶν χρόων ἑτερότητα, ἢ ἐκείνου πρὸς τὸ ἠλέκτρινον. πάντων γὰρ αἱ αὐγαὶ κατὰ ταὐτὸν ὁρώμεναι, καὶ τηλαυγεῖς εἰσί, καὶ τῆς πρὸς ἀλλήλας συναφείας τὰ σημεῖα κλέπτουσαι, τοὺς ἐλέγχους ἐκφεύγουσιν, ὡς ἀμήχανον ἐξευρεῖν, μέχρι τίνος ἕστηκε τὸ πυρῶδες, ἢ τὸ σμαραγδίζον τῆς αἴγλης, καὶ ἀπὸ τίνος ἄρχεται μηκέτι τοιοῦτον εἶναι, οἷον ἐν τῷ τηλαυγεῖ καθορᾶται.

(xxi) Ammianus Marcellinus: 20.11.26 - 28.

Halitus terrae calidiores et umoris spiramina conglobata in nubes, exindeque disiecta in aspergines parvas, ac radiorum fusione splendida facta, supinantur volubiliter contra ipsum igneum orbem, irimque conformant, ideo spatioso curvamine sinuosam, quod in nostro panditur mundo, quem sphaerae dimidiae parti rationes physicae superponunt. Cuius species quantum mortalis oculus contuetur, prima lutea visitur, secunda flavescens vel fulva, punicea tertia, quarta purpurea, postrema caerulo concreta et viridi. Hac autem mixta pulchritudine temperatur, ideo ut terrenae existimant mentes, quod prima eius pars dilutior cernitur, aeri concolor circumfuso, sequens fulva, id est paulo excitatior quam lutea, punicea tertia, quod solis obnoxia claritudini, pro reciprocatione spiritus fulgores eius purissime e regione deflorat, quarta ideo purpurat, quod intermicante asperginum densitate, per quas oritur, radiorum splendor concipiens ostendit aspectum flammeo propiorem, qui color quanto magis diffunditur, concedit in caerulum et virentem. Arbitrantur alii tunc iridis formam rebus apparere mundanis, cum altius delatae nubi crassae radii solis infusi, lucem iniecerint liquidam, quae non reperiens exitum, in se conglobulata nimio splendescit attritu, et proximos quidem albo colores a sole sublimiore decerpit, subvirides vero a nubis similitudine superiectae, ut in mari solet usu venire, ubi candidae sunt undae quae litoribus illiduntur, interiores sine ulla concretione caerulae.

(xxii) Nonnos: *Dionysiaca* 2.201-4.

ὑπακτίνεσσι δὲ λάμπων
ἀντιπόρου Φαέθοντος ἐκάμπτετο σύνδρομος ὄμβρῳ
Ἴριδος ἀγκύλα κύκλα πολύχροος ὁλκὸς ὑφαίνων,
χλωρὰ μελαινομένῳ, ῥοδοειδέϊ λευκὰ κεράσσας.[34]

D. *The Image of γλαυκῶπις*

(i) Connected with the colour of air. Diodorus Siculus, 1.12.8. Cf. Moschus 2.144 and, probably, Theocritus 16.5.

(ii) Connected with the colour of the sky. Nigidius, apud Aulum Gellium, *N.A.* 2.26.19.[35]

(iii) Connected with the sea or water. Cicero, *De Natura Deorum* 1.30 (83). Orphic *Hymn* 22.1. Pausanias, 1.14.6. Herodotus 4.180. Cf. Paulus Silentiarius who used γλαυκῶπις of the unruffled calm of the Bosphorus, (γλαυκῶπιν γαλήνην), *Descriptio Ecclesiae Sanctae Sophiae* 294, 924.[36]

(iv) Connected with the Moon in eclipse. Plutarch, *Moralia* 934d.

(v) Connected with the olive. Euphorio, fr. 150 (Powell).

(vi) Connected with eyes. L. R. Farnell dismissed the idea that γλαυκῶπις referred to brightness alone. "[Of no value]," he said, "are the arguments drawn from the worship of Athena 'Οξυδερκής at Argos and 'Οφθαλμῖτις at Sparta, epithets referring to the 'keen-eyed' goddess... The piercing brightness of the eye is part of the purely human conception of the goddess.... and it is probable that 'Οφθαλμῖτις and 'Οξυδερκής are cult-names derived from the appearance of the idols, which may have had the same γλαυκὰ ὄμματα as were seen in the archaic statue of Athena at Athens. The light-blue flashing eye seemed to Cicero to belong to the artistic ideas of Minerva."[37] In his discussion of the Fifth *Hymn* of Callimachus, K. J. McKay took this perception a stage further. "Athene of the penetrating gaze, *Athene of the potentially evil eye,* Athene who reacts to criticism of her eyes, all of these are associations which present the goddess as a formidable adversary."[38]

(vii) Ancient lexicographers. Hesychius, γλαυκῶπις = εὐόφθαλμος.[39] *E.M.* "γλαυκόφθαλμος καλή," 233.32. *E.G.* fumbled for an explanation. Seleucus, it said, was called Γλαυκῶπις from Mt. Glaucopis [i.e. Lycabettos], or because his eyes (ὦπας) were γλαυκούς, or because his eyes flashed terribly (δεινὸν γλαύσσειν), or because his γλαυκά commanded respect. Codex z, "γλαυκόφθαλμος· ὁ τὸ γλαυκὸν ἔχων ἐν τῷ ὀφθαλμῷ. παρὰ τὸ γλαύσσειν ὅ ἐστι λάμπειν." Eustathius could not make up his mind, either. His longest discussion rejected the idea of colour. Athene was γλαυκῶπις, not because of the colour of her eyes, but because her gaze was terrible, like that of lions and basilisks.[40] On the other hand, the word was used to indicate her relationship with Zeus.[41] Thirdly, it was a colour-term

referring to the eyes, the sea, the olive, etc.[42] Finally, he suggested that εὐῶπες were so called, not because their faces were beautiful but because they appeared so in the eyes of those who saw them, and that this was true also of γλαυκῶπις, ἑλικῶπις, etc.[43] It is interesting that the notion of terror should be so long associated with Athene's eyes, and I am sure that the link between fear and light blue is no accident, but part of the history of the Evil Eye in the Mediterranean area.

(viii) Modern Greek. γλαυκός = blue. γλαυκῶπις = blue-eyed woman.[44]

E. *Alexander's Eyes*

Pseudo-Callisthenes, *Historia Alexandri Magni* 1.13. One eye was λευκόν, the other μέλαν, which means simply that one was light-coloured and the other dark. This contrast was followed by later writers. Julius Valerius, "admodus nigra pupilla," (4th A.D.); Leo, "unus est niger atque albus est alter," (10th A.D.); Tzetzes, " ὁ βασιλεὺς ὁ μέγιστος Ἀλέξάνδρος Φιλίππου / γλαυκὸν τὸν ἕνα ὀφθαλμὸν ἔχειν θρυλλεῖται πᾶσι / μέλανα δὲ τὸν ἕτερον," *Historiae* 11.90-3 (12th A.D.).[45] The Armenian version is more specific. "For he had the hair of a lion and one eye was blue; the right one was heavy-lidded and black, and the left one was blue."[46] The tradition of pseudo-Callisthenes lingered in Islamic accounts. As late as the thirteenth century one finds a short, sober narration of the King which includes the information that he had red hair and blue eyes.[47] The Ethiopian version said, "His eyes were different in colour, his right eye being black and his left eye light green (or blue)."[48]

M. Bertolotti subscribed to the view that Alexander's eyes were of different colours, and suggested that it was possible he had sympathetic heterochromia resulting from a unilateral alteration of the optic nerve owing, perhaps, to some inherited factor, or damage to the sympathetic nerve at birth.[49] Cf. Duke-Elder, "The possibilities that changes in the colour of the iris follow a sympathetic lesion is founded on a sound experimental basis." [The 'sympathetic' refers to certain nerves of the eye.] "It may well be... that heterochromia is a minimal ocular expression of a congenital but mild neural disturbance, probably autonomic in nature."[50] See a colour-plate, showing a brother and sister with heterochromia, right eye blue, left eye brown (the opposite of Alexander), Waardenburg-

Franceschetti -Klein: *Genetics and Ophthalmology,* plate 15. See also *Ibid.,* 707-8. Bertolotti also provided a colour-plate (no. 1) showing heterochromatism of the eyes. The lower of his two pairs illustrates Alexander's type. It is quite possible, however, that Bertolotti's theories were based on a false premise. Mary Renault, for example, has an interesting explanation of the phenomenon. "A head blow gave him a spell of clouded vision. From this may derive a curious quirk of the Alexander legends, that he had one grey eye and one black. One dilated pupil is a common feature of concussion; some local report of him, in a state when most people would have been in bed, may have lodged in folk memory."[51]

Pictures of Alexander are not very helpful. On the famous mosaic from the House of the Faun in Pompeii, he is shown with light brown eyes. These may or may not faithfully reproduce the colours of the original painting, probably by Philoxenos of Etruria, which was commissioned in about 317 - 316 B.C. by Cassander of Macedon. Philoxenos, however, seems to have used only a four-colour palette—shades of white, ochre, red, and black—partly because of convention, partly for the sake of restrained dramatic effect.[52] In consequence, one cannot treat the picture as one would photographic evidence, and may not use it to say that Alexander had brown eyes, after all. Besides, it contradicts all ancient written testimony, and one should bear in mind both the leonine look so often attributed to Alexander and the fact that lions do have light brown eyes.[53] The painting, therefore, although closer to Alexander in time, may actually be a good deal more misleading than later documents.

The pebble mosaic at Pella, usually dated to about 300 B.C., gives Alexander light-coloured irides, using stones of a light greeny-amber. The Sidon sarcophagus, which retains some of its paint, shows Alexander's right eye blue, a contradiction again of the ancient texts, even though it agrees with the colour they describe. But that could be owing to a small point of artistic licence or a retouching done at a later period.

C. de Ujfalvy, who collected and discussed the testimonies of Alexander's appearance, came to the conclusion that he was of average height, well-proportioned, with reddish hair and blue eyes.[54] Ujfalvy did not accept the tale of heterochromatism, but could not make up his mind about the shade of blue, since he called it both *pers* and *bleu foncé.* Polemon, however, said that Alexander's

eyes were the colour of the sky, i.e. light blue.[55] The text is Arabic, and faulty at this point, giving the word *samānjūn* which does not make sense. It is likely, though, that this is a derivative from the Persian *āsamān-gūn* which means, literally, *heaven-colour*, and certainly accords with literary tradition. Cf. late Greek οὐρανόχρους used of the sapphire.[56]

Addendum

Ancient references to heterochromism (δίχορος) are few and come mainly from very late authors.

(i) Thamyris, a Thracian bard mentioned by Homer (*Iliad* 2.594 sq.), was supposed to have had one γλαυκός eye and one μέλας. Eustathius, 289.44.

(ii) Nysia, the wife of Candaules, was δίχορος. Ptolemy Chennos: *Nova Historia* 5 (apud Photium, *Bibliotheca* 190 = Migne, *P.G.*: 103.624).

(iii) Anastasius I, Byzantine Emperor, was called Dicorus because one eye was γλαυκή and the other μέλαινα. Johannes Malalas: *Chronographia* 16.1 = Migne, *P.G*: 97.580-1. Zonaras: *Epitome Historiarum* 14.2 (Dindorf). Suidas, s.v. δίχορος.

(iv) Both διχορία and διχοριάσεις are mentioned as eye-conditions for which treatment is prescribed in the *Cyranides* collection, Mély 34, 75. Cf. an anonymous Byzantine writer, *Physiognomica* 3 (Forster II.225).

F. *A Note on Alexis Comicus*

(i) Date: c. 375 - c. 275 B.C.
(ii) The title of a play, ὁ ἀπεγλαυκώμενος.[57]

Commentary

The various colour-terms beginning with ἀπο may be difficult to understand exactly, because one may take ἀπο in two different ways. Its principal meaning is *away from* and implies a point of departure as the norm from which the whole term is moving. For example, ἀπερυθριᾶν is used regularly to mean *unblushing.* "You should turn red (ἐρυθριᾶν) when praised, not leave red behind (ἀπερυθριᾶν)," i.e. be without a blush.[58] Red is the norm from which the verb departs thus implying that the new condition is abnormal.[59]

It appears, however, that this is a meaning peculiar to ἀπερυθριᾶν, for the other terms make sense only if one takes ἀπο + to indicate the colour *to* which the object has changed *from* what it was before. Plutarch, (*Eumenes* 16.6), said that during a battle on a dry, sandy plain, the dust kicked up was of a dry saline substance which looked like lime and made the air ἀπολευκαῖνουσαν, so that the vision was obscured. This will not make sense if one takes it to mean that the air was other than white because of the dust, so it must mean that the air was *turned white from* being clear before. Similarly, Hippocrates described a scar on the iris as leaving a perceptible, light-coloured mark there (ἀπολευκάνῃ), the contrast being between the original dark part of the eye, (μέλανος), and the white or light mark which was not there before.[60] One of the stages of gangrene is a whitening of the flesh after being red;[61] pressure applied to the limb can make a difference to the speed of mortification (ἀπομελάνθεντα).[62] Coal which has glowed red or white in the fire will turn black (ἀπομελαίνονται) when removed from it;[63] a man may turn pale from shame or extreme emotion;[64] wool which has been dyed γλαυκός with woad was described, in the final part of the process, as ἀπογλαυκωθέν—"wool which has been turned γλαυκός."[65]

There can be little doubt, therefore, that ἀπο + colour was meant to indicate the shade *to* which the object had turned *after* being something else. Hence, Alexis wrote a play about a man whose eye had turned γλαυκός from some exterior cause, (the passive voice indicates that he was not born with a γλαυκός eye), and one is left to conjecture that the cause was probably disease. There is no assistance to be gained from a study of the play's remaining fragments.

G. *Arabic Translations of γλαυκός and χαροπός*

I have already noted certain curious features of Arabic renderings of γλαυκός and χαροπός. For the sake of regularity I shall repeat the examples which I noted previously.

(a) The Arabic translation of Aristotle: *GA* 5.1 (779a.26) used both *shahal* and *zaraq* to indicate the variations of blueness in babies' eyes, implied by the Greek γλαυκότερα. *Ibid.* (778a.18) translated γλαυκότης as *shahūla.*

(b) Hippocrates: *De aeribus etc.*, 14, γλαυκός = *shahal.*

(c) Pseudo-Aristotle: *De Plantis* 2.9 (828b.2), of a plant = *azraq dākin,* literally 'dark light blue.'

(d) Aristotle: *H.A.*, attributed translation by Mūsā ibn 'Ubaid Allāh al-Qurṭubī al-Isrā'īlī, γλαυκός = *shahal.*
(e) Dorotheus: *Carmen Astrologicum,* fr. 5.35, γλαυκός = *azraq:* ὑπογλαύκους = *ashhal.*
(f) Pseudo-Polemon: *Physiognomica.* Here there is a clear difference made between γλαυκός and χαροπός. Each time γλαυκός appeared, it was translated as *zurqa;* and on each occasion, χαροπός was rendered as *shahla.*[66]

There are difficulties in translating Arabic colour-terms with any degree of accuracy, but *azraq,* connected with the noun *zurqa,* gives us the English term *azure,* and therefore refers to light blue. Certainly, whoever translated pseudo-Polemon into Arabic made a clear distinction between *azraq* and *ashhal,* and applied the distinction regularly. That there could be variation within the blueness of γλαυκός was recognised by pseudo-Polemon who said that it was sometimes pale, sometimes hyacinthine, by which one should understand a somewhat darker shade of blue.[67] This could account, perhaps, for the Arabic versions of (a), (c), and (e).

But there still remains a problem over the meaning of *shahla* or *ashhal.* The ninth century Arab ophthalmologist Honain ibn Isaac said that there were four colours of the eye, *akhal,* which is dark blue-black, the word from which *kohl* is derived; *azraq* which, as we have seen, means 'light blue';[68] *ashhal,* whose meaning is a problem; and *ashʿal* which probably refers to a tawny or amber shade.[69] Honain went on to describe the eye-colours of certain races, in order to illustrate the observation he had just made. Ethiopians, he said, have *akhal* eyes, Slavs *azraq,* and those in between, *ashhal* or *ashʿal.*[70]

Now, it strikes me that one can make two remarks about that. By Slavs, Honain would mean almost any Northern European, and his ascription of light blue eyes to them was in accordance with Greek views of the same people. Africans' eyes are very dark brown, and so the in-between will be the lighter shades of brown (as well as other colours) covered by the two very similar terms *ashhal* and *ashʿal.* I might hazard a guess that there could easily arise confusion between اشهل (*ashhal*) and اشعل (*ashʿal*), and this suggests that translations of the former should often more accurately be translations of the latter. In other words, χαροπός (amber) certainly represents *ashʿal,* whereas it is difficult to explain its connections with *ashhal.*[71]

Nevertheless, there are problems over *shuhla.* Lane explained it as a mixture of colours, blue, black, red, all with application to the pupil of the eye.[72] Dozy suggested *fauve* in connection with wine, and paths 'darkened' after a shower of rain,[73] which is curiously reminiscent of διαγλαύσσειν in Apollonius Rhodius: *Argonautica* 1.1281, (on which see supra, 144). Mixture seems to be the keynote of the explanations, and one may compare the variety of colour in χαροποί eyes recorded by an anonymous Latin physiognomist. Of the little 'drops' in such eyes, which he likened to millet seeds, he said, "They are pale, dark blue, reddish, and as if with fiery sparks, of bloody hue, dark and white, etc."[74] The Arabs quickly developed an accurate scientific terminology, and *shahla* is a part of that, since it is a term applied only to the eyes. In consequence, the Arab ophthalmologist must have meant to refer to some specific shade, clearly differentiated from *azraq,* perhaps by means of a term intended to encompass the variations of 'speckling' (as Adamantius called it) which can often be noticed in light-coloured irides. The exact application, however, and its relationship with Greek terminology, will have to be pursued in detail elsewhere.

H. *Theophilus: De Urinis*

The medical textbook on urine by Theophilus Protospatharius (ninth century A.D.)[75] gave two lists of possible colours which could be observed, one in 'thin' urine, the other in 'thick'.

Thin.	*Thick.*
λευκόν	λευκόν
γαλακτῶδες	γαλακτῶδες
γλαυκόν	χαροπόν
χαροπόν	ὑπέρυθρον
ὠχρόν	ἐρυθρόν
ὕπωχρον	οἰνωπόν
ὑπόπυρρον	κυανοῦν
πυρρόν	χλωρόν
ὑπόξανθον	πελιδνόν
ξανθόν	μέλαν.[76]

These descriptions, interesting in themselves, and revealing a detailed and accurate observation of the changes which can occur

both in the colour and in the composition of urine, are relevant to us because of their inclusion of γλαυκός which is an unusual colour to apply to urine and is here devoid of its frequent association with λευκός, as Theophilus was at pains to point out. It was a clear, unmixed colour.[77]

Now, it is perfectly possible to account medically for all the other colours which appear in Theophilus's list. Red urine, for example, may be produced by blood, by pigment from beets, by exposure to cold, latent syphilis, parasitic disease, and many other causes, Milky urine can be caused by pus, by an abdominal tumour, by mechanical blockage, and so on.[78] Given that γλαυκός is a colour produced by dyeing with woad, it is reasonable to suppose that urine of such a colour may have been affected by indigo in one form or another, and indeed certain chemical precursors of it may be found in one's secretory and excretory products under certain circumstances.

One such circumstance is provided by indogouria, a somewhat unusual but not exceptionally rare characteristics of certain infectious diseases. What happens is that indigo blue is passed in fresh urine, thus tinting it light blue. The condition is caused by the decomposition of *indican,* indoxyl sulphuric acid ($C_8H_6NSO_4K$), which is a normal constituent of animal urine.[79] Once again, therefore, it is possible to account for γλαυκός by reference to light blue and not to any shade of green.

Addendum

A fifteenth century Byzantine uroscopy Ms. which illustrates Theophilus's book shows γλαυκός as a pale whitish colour,[80] and another uroscopy chart from the West describes γλαυκός as being of a waxen shade, putting it between *albus* and *lacteus.*[81] Another set of illustrations from *Trinity Ms.* 922 (R.14.52), dated to the fifteenth century, shows *glaucus* as a pale yellow and describes the colour as 'like thin horn'. This is obviously a misunderstanding of Theophilus, 'ὡς κέρας διαυγές,' (*op.cit.* 6.3). Another fifteenth century Ms. shows *albus* as a dirty dark brown, *lacteus* as white, and *glaucus* as a watery *albus* with undertones of pink and grey-brown.[82] A copy of this is perhaps more interesting because the colours are less faded, the main differences being that the red lines linking three 'bottle specimens' do not spread so far into the centre, and there is

a red circumference drawn between the rim of each of the circles in the middle.

In the *albus* one can see clearly the pale pink over which brown has been washed, the brown being a muddy dark shade. *Glaucus* is represented as a *very* pale grey with perhaps a minute touch of pale brown just inside the rim of the circle. It is the grey of a light lead pencil. To the right of this is *lacteus* which is white but speckled.[83]

I. *A Note on Choeroboscus*

(i) Date: fourth or fifth century A.D.[84]
(ii) *De Mensuris*. [p. 317.24-5, Cramer].
κυανοχαίτης = having much hair.
γλαυκοχαίτης.........
αἰολοχαίτης = having hair of different colours (ποικιλόθριξ).

Commentary.

Cramer altered γλαυκοχαίτης to γλακοχαίτης, which does not exist, in spite of all the Codices agreeing on the former reading. I doubt if any change needs to be made, though γλαγοχαίτης might make sense if one were eager to emend. Κυανοχαίτης, however, is presented as a youthful head of thick black hair with that faint blue sheen which really black hair often has. Its opposite, therefore, would be 'light blue-grey hair,' the iron-grey of old age, usually called πολιός in both prose and verse.[85] As the word does not appear elsewhere before Choeroboscus, it is difficult to know whether he lifted it from some poet or invented it as a suitable opposite for κυανοχαίτης.

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NOTES TO CHAPTER ONE

[1] Apud *Die Schriften zur Naturwissenschaft* 6: *Zur Farbenlehre,* Vol. 2, (Weimar 1957), 36-7.

[2] Pseudo-Aristotle: *De Coloribus* 1-3 (791a. - 794a.15).

[3] See further H. von Helmholtz: *Handbuch der physiologischen Optik,* trans. J. P. C. Southall, Vol. 2 (Optical Society of America 1924), 114-15. E. Irwin is of the opinion that Goethe may have been influenced by the theories of John Dalton on colour blindness, *Colour Terms in Greek Poetry,* 6. Undoubtedly alchemical theory had a profound effect on his views about colour. See R. D. Gray: *Goethe the Alchemist,* (Cambridge 1952), 101-32. For a sympathetic appraisal of Goethe's work, see A. Bjerke: *Neue Beiträge zu Goethes Farbenlehre,* (Stuttgart 1961).

[4] *Studies on Homer and the Homeric Age,* Vol. 3, (Oxford 1858), 458.

[5] "The Colour-Sense," *The Nineteenth Century* 2 (1877), 388.

[6] *Loc.cit* supra, 387-8.

[7] *The Colour Sense: Its Origin and Development,* (London 1879), 271.

[8] *Op.cit.* supra, 207, 208, 208-9, 211. In some primitive languages, however, it must be noted that these careful distinctions between colours do not appear to have existed, especially in the blue-green area of the spectrum. See, for example, K. B. Branstetter: "A reconstruction of proto-Polynesian colour-terminology," *Anthropological Linguistics* 19 (January 1977), 1-25. Investigation of Eskimo colour-terminology found that the colour vocabulary had its source in (a) accurate introspection of colour-sensation, and (b) naming of dye-stuffs or paint-stuffs which were the objects of barter, the thing and the colour having the same name. Apparently the Eskimos could attach no meaning to the word for blue. See C. L. Franklin: "Colour-introspection on the part of the Eskimo," *Psychological Review* 8 (1901), 396, 400 note 1.

[9] "Greek Colour-Perception," *CQ.* 15 (1921), 162.

[10] According to an article by K. Jonas, the Greeks were at least partly colour-blind, especially with regard to blue, and so much of their painted decoration must have looked to them quite other than it does to us, *South African Architectural Review* (November 1939). Cf. the thesis of W. Schultz that the Greeks could not see yellow or blue, could not distinguish between πράσινος and πορφυροῦς, and were hazy about red and χλωρός, *Die Farbenempfindungssystem der Hellenen,* (Leipzig 1904).

[11] "Some remarks on colour in Greek poetry," *CW.* 27 (1934), 189.

[12] On this point, see further P. Francastel, apud I. Meyerson, *Problèmes de la Couleur,* 326.

[13] The latest book, *Colour Terms in Greek Poetry,* by E. Irwin, although avoiding many of the pitfalls of earlier essays, still concentrates on poetic evidence to the detriment of that drawn from prose, and refers to modern methods of analysing colour, in order to come to conclusions about ancient meaning and usage. See in particular her pp. 201 - 3 and note the perceptive comments of A. W. Bulloch in his review of her book, *G&R* 23 (1976), 85.

[14] "Colour Concepts of the Ancient Greeks," *British Journal of Aesthetics* 8 (1968), 274, 283.

[15] How wide a variety exists may be seen from H. J. Eysenck's claim that "there are some 340,000 discriminable colour experiences, each of which is absolutely unique and distinguishable from any other," *The Scientific Study of Personality,* 18.

[16] As long ago as 1883, A. de Keersmaecker rejected the idea that there was anything wrong with the Greeks' colour-vision, in favour of suggesting that the fault lay with an imperfectly developed colour-vocabulary, *Le sens des couleurs chez Homère,* (Brussels 1883), 8, though even he could not refrain from using a phrase such as "à l'enfance de l'humanité", (81). My subsequent arguments will endeavour to refute the thesis of a jejune vocabulary.

[17] Cf. "Age differences may be expected to affect constancy in colour perception when the perception depends upon identification, as it does in memory colour, or upon the discrimination of minimal stimuli indicating light and shade. Age differences may also be expected to affect attitude: older observers, more often than children, adopt different attitudes; for example, they may change from an objective to an analytic attitude," J. Beck: *Surface Colour Perception,* (New York 1972), 163.

[18] S. Fogelmark: *Studies in Pindar,* (Lund 1972), 15, 16. He goes on to make the point I made earlier, that the Greeks were not used to artificial colours. One must bear in mind, for example, that in a technical process such as dyeing, a variety of shades may be produced during the operation, which requires only a single colour term since the intention is to produce only a singe colour. "Purple" is the most notoriously variable colour but, despite the different shades which may appear both in the dyeing process and then under chemical change wrought by exposure to sunlight, it would be unreasonable to suggest that the intended product was anything but a single colour. In consequence, only one colour term is needed. For an illustration of the various shades which can result from the action of the sun upon ancient purple, see L. M. Wilson: *The Clothing of the Ancient Romans,* (Baltimore 1938), frontispiece.

[19] R. S. Brumbaugh, to give an example from prose, suggested that Plato may have been partly red-green colour-blind; "Colours of the Hemispheres in Plato's Myth of Er, (Republic 616E)", *C. Ph.* 41 (1951), 176, note 11. This form of colour-blindness, incidentally, is quite frequent among European and American whites, about 7 or 8 per cent of whom are afflicted; R. W. Pickford: "The Genetics of Colour Blindness", apud *Ciba Foundation Symposium on Colour Vision,* ed. A. V. S. de Reuck & J. Knight, (London 1965), 241.

[20] By "normal sense" I mean here the sense in which the community as a whole will understand the word. An individual may normally describe a certain object as *caerulean;* the community may normally call it *light blue.* Thus, the latter will be the 'normal' term for that object's colour. 'Normal' refers to the habitual and instinctive association made between the colour term and the object. If asked what colour he associates with *sky,* an individual may say "blue" at first but then, after a while, modify and expand his statement as he thinks of sunrise and sunset, clouds, storms, and so forth. His first reply would probably be the one given by most people in his community, and that is what I intend by the 'normal' sense of a colour term.

[21] Gladstone was of the opinion that οἶνοψ simply meant *dark;* "The Colour Sense", 377. Keersmaecker more or less agreed; *Le sens des couleurs,* 87. So does Irwin; *Colour Terms,* 28, 202. Another modern critic, E. Handschur, discusses οἶνοψ briefly, but gives little assistance towards understanding Homer's usage; *Die Farb- und Glanzwörter bei Homer und Hesiod, in den homerischen Hymnen und den Fragmenten des epischen Kyklos,* (Dissertation, Vienna 1970), 133-5.

[22] D'Arcy Thompson: *Greek Birds,* s.v. οἰνάς. Cf. Grzimek: 8.243, no. 1. The origin of the word οἰνάς is obscure, but the Greeks obviously connected it with οἶνος because of the bird's colour.

[23] If μέλας is thoroughly investigated, it will be found to refer to dark red objects more frequently than to any other. Pseudo-Aristotle's example of grapes turning reddish-purple is, therefore, accurate.

[24] The eyes of most goats are amber or dark reddish-brown.

[25] An old name for dysentery was 'bloody flux' because blood is excreted along with the faeces. Notice the combination of red and brown colours.

[26] Philo used οἰνωπός again in the same passage to refer to the blood of the Church's martyrs. He was indulging some very strained symbolism, but the colour-reference is not affected.

[27] 'Rose-coloured' are the rare variety, according to O. Polunin: *Flowers of Europe,* no 1087. Pale lilac seems to be the common shade. See Polunin, plate 106.

[28] *N.H.* 24.38 (59-60).

[29] See Caley-Richards: *Theophrastus on Stones,* 121-2. W. Capelle was inclined to take Theophrastus's word to mean *violet,* on the strength of this reference to the amethyst; "Farbenzeichnungen bei Theophrast", *Rh.M.* 101 (1958), 29-30. Cf. Pliny: *N.H.* 37. 90 (121). See also G. F. H. Smith: *Gemstones* (14th ed.), 365 and plate IX.

[30] There is also a reference to hair by the anonymous Latin author of *De Physiognomica* (14), "capilli subnigri quos Graeci οἰνωπούς dicunt". But this begs the question, "What does *subnigri* mean?" Greek usage suggests that here it refers to very dark red hair. Latin colour terms, however, are in as much need of elucidation as Greek, so this information is not as helpful as it might appear to be.

[31] It is unfortunate that 'drunk' in English is so often associated with 'incapable'. In consequence, 'tipsy' is probably a better word.

[32] *Iliad* 9.365.

[33] Adamantius: 1.13 Οἰνωπός does not mean 'wine-faced', as S. A. Barlow appears to take it in *The Imagery of Euripides,* (London 1971), 9. She translates it as "deep red", as though it were referring to the snake's head. The only such snake I know of, however, is the red-headed krait (*Bungarus flaviceps*), an unlikely candidate for identification. Besides, how is one to understand κατάχαλκος? The picture is of an angry warrior ready to fight, and there is a subtle link between οἰνωπός and κατάχαλκος which is completely lost if ὄψ is taken to mean *face.* Cf. Euripides: *Hypsipyle,* 164-5. See further, M. S. Silk: *Interaction in Poetic Imagery,* (Cambridge 1974), 79-81.

[34] Οἰνωπὸν ἄχνην = 'ruddy froth of wine', (trans. Wedd, 1895). The phrase is significant. Whenever Homer used ἄχνη of the sea, it was to indicate turbulence, anger, violence. See *Iliad* 4.426, where the Greek army is likened to the sea driven by winds, boiling round a headland, and cf. *Ibid.* 11.307; 15.626, and *Odyssey* 5.403; or *Odyssey* 12.238 in which ἄχνη describes the sea between Scylla and Charybdis. The Homeric associations of the word carry over into this Euripidean usage and lend a touch of violence to Helen's speech. The colour of the wine reminds one of another Homeric phrase, 'πορφύρεος θάνατος'. Chantraine has pointed out that this means 'bubbling' death, a reference to the changes of colour passing over a man's face as he dies from a violently inflicted wound. The metaphor was derived from the industrial process of boiling colour from the murex-fish. See I. Meyerson (ed.): *Problèmes de Couleur,* 326. Cf. L. Gernet, *Ibid.*: 321-2.

[35] Reference to the Loeb, *Select Papyri,* (1962), Vol. 3. R. Cantarella translated σέλας οἰνωπόν as "un fulgore fosco", which misses the colour sense entirely; *Euripide, I Cretesi,* (Milan 1963).

[36] Edited by G. W. Bond, (Oxford 1963).

[37] See Polunin: *Flowers of Europe,* no. 483, and plate 48.

[38] 'Ερυθριόωσαν, 30, 197.

[39] Also 7.327, 341; 9.122; 14.243; 35.359; 39.57. On the properties of the amethyst, see Plutarch: *Moralia* (Quaestiones conviviales 3.1), 647a. Cf. an epigram which describes the figure of Drunkenness carved on an amethyst, *A.G.* 9.752 (Asclepiades or Antipater of Thessalonica).

[40] Also 12.187; 13.7; 16.33, 276; 18.296; 42.26; 47.51, 249.

[41] Also 27.34; 29.174; 31.59; 32.44; 38.16; 39.73; 40.70; 47.721.

[42] Also 15.126; 17.246; 20.322; 28.16; 30.22, 198, 318; 35.152; 43.21; 45.88; 47.642.

[43] *Iliad* 13.703. *Odyssey* 13.32. Notice, however, the suggestion by Kerenyí that Linear B *wo-no-qo-so* (Oinops), applied to bulls, may have been connected with the use of bullshead rhytons to contain wine in religious rituals, *Dionysos,* 54.

[44] *Iliad* 2.613; 5.771; 7.88; 23.316. *Odyssey* 1.183; 2.421; 3.286; 4.474; 5.132, 221, 349; 6.170; 7.250; 12.388; 19.172, 274.

[45] F. E. Wallace: "It makes little difference whether this redness of the sea comes from sunset light, or from the colouration of the sea near land by red soil, or is simply in the poet's mind. The protean sea is capable of showing many colours at once, depending on the relation of the observer to the sun," 'Colour in Homer and Ancient Art,' *Smith College Classical Studies* 9 (1927), 27. I could not disagree more with this cavalier dismissal of the problem. The words a great poet uses are of the greatest importance; they make a deal of difference, and our task is to find out, if we can, what that difference is and what it is meant to signify.

[46] *The Use of Colour Terms in the Greek Poets,* 85 sq. Notice the unconsciously patronising "even to him."

[47] Discussion of Greek and Roman wines deserves separate treatment altogether. The extent of the problem may be seen not only from Kober's remarks but from A. D. Fitton Brown who can use many of these colour terms, and still write that "the ancients were not very sensitive to the colours of wine", "Black Wine", *C.R.* n.s. 12 (1962), 192-5. The variety of these adjectives must also rebut, at least in part, E. Irwin's suggestion that οἶνοψ means simply *dark* because the Greeks were used to seeing wine, not through glass as we do, but in an opaque drinking-cup, so that the dark surface reflecting light provided the point of comparison between wine and the sea, *Colour Terms,* 28.

[48] *The Africa Pilot* (5th ed.), London 1890, 90. The area so described is to the North and South of Cape Nun. On the Red Sea, and other red-tide phenomena, see *Encyclopaedia Britannica* (15th ed.), 14.495 s.v. Plankton.

[49] Winds—*Iliad* 23.316. *Odyssey* 2.421. Storm—*Odyssey* 5.132, 221; 7.250; 12.388. Danger—*Odyssey* 6.170; 19.274. Cf. Hesiod: *Theogony* 870 sq. It was an attitude which, not surprisingly, persisted. See Book 7 of the *Anthology* for epitaphs of those drowned at sea. C. Gallavotti makes the point that Homer used οἶνοψ in connection with storms, without saying why he should have chosen that particular word; "Nomi di colori in Miceneo", *P.P.* 12 (1957), 8.

[50] The results which may be expected, even from a limited and somewhat unsatisfactory study, can be gauged from the remarks of F. E. Wallace at the end of her essay on Homer. "I undertook the study of the use of colour in Homer with the conviction that its peculiarities were caused by shortcomings in the vision of the Homeric Greeks. But further study of both Homer and modern scientific theories of colour have failed to reveal grounds for this idea... Homer, to be sure, fails to mention the colours of certain natural features, but it is unwise to base an argument on negative evidence. The colours that Homer does use and the colours mentioned by later Greek writers on colour, show an appreciation of colour possibly greater than ours," *op.cit.* 82-3. The most commonsensical remarks about Greek colour-terms, long overdue, have been made by V. J. Bruno: *Form and Colour in Greek Painting,* 47-51.

NOTES TO CHAPTER TWO

ADAMANTIUS

[1] A Jew who taught medicine in Alexandria until the expulsion of his people by Patriarch Cyril in 415 A.D. He then went to Constantinople where he was converted to Christianity. His *Physiognomica* was largely borrowed from an earlier writer, Polemon. See Socrates: *Historia Ecclesiae* 7.3 = Migne, *P.G*: 67.764-5. Further details about physiognomists are given by B. C. Evans in "Physiognomics in the Ancient World," *TAPhS* n.s. 59, no. 5 (1969).

[2] "ἀλαμπεῖς". Cf. pseudo-Aristotle: *De Coloribus* 3 (793a.12) where it is used of colour.

[3] "μήποτε...συνοδίτην εὔξῃ." Συνοδίτην is a conjecture by Förster. The Mss. have πολίτην. The phrase does not appear in the version of pseudo-Polemon, a late Byzantine writer, [see Förster: I.cxxv]. One might also translate the phrase as "don't boast about him as a member of the same club", but the context demands avoidance of the man rather than attraction to him, so I think the former version is more credible.

[4] In pseudo-Polemon, the Mss. have μικροί, but this is unlikely to be accurate, as the Mss. of Adamantius add a title, περὶ ὀφθαλμῶν γλαυκῶν, to this particular section. Schneider, therefore, rightly changed μικροί to γλαυκοί in pseudo-Polemon's text.

[5] Förster conjectured τὴν γλαυκότητα. The Mss. of pseudo-Polemon have κύκλα, for which Schneider conjectured γλαυκά.

[6] Pseudo-Polemon = ἀσθενεῖς.

[7] Since γλαυκοί refers to the eyes, one must presume that ξανθοί refers to their complexions. Cf. pseudo-Aristotle: *Problemata* 14.14 (910a.13-23).

[8] "τῶν δὲ γλαυκῶν τὸ μὲν λίαν λευκὸν δειλόν." Förster supplied λευκόν from the versions of pseudo-Polemon and the Codex Matritensis. Mss. M and S have γλαυκόν.

[9] For a coloured illustration of this, see Duke-Elder: *System of Ophthalmology* II. plate 1, figs. 1 and 2. See also *Ibid.*, 169-171. Describing clear blue eyes, C. B. Davenport says, "At the outer periphery of the iris the lead coloured pigment gradually fades away to a straw colour as the cornea thickens and the ciliary processes from an opaque background to the iris. At the pupillary margin the distal edge of the retinal part of the iris is frequently exposed, forming a dense, black boundary between iris and pupil," 'Heredity of Human Eye Colour,' *Bibliographica Genetica* 3 (1927), 445-6.

[10] *Physiognomica* 1 (805a). See also A. MacC. Armstrong: 'The Methods of the Greek Physiognomists,' *G&R* n.s. 5 (1958), 52-6.

[11] Ps-Aristotle: *Problemata* 14.14 (910a.13, 16, 23). Galen: *In Hippocratis Epidemias 3, Commentarius* 3.70 = K17[1].726. Herodotus: 4.108. Horace: *Epodes* 16.7. [J. Gow's comment on this in his edition of the *Carmina*, (Cambridge 1914), was mistaken. 'Commonly said to mean "blue-eyed," but more probably "painted blue with woad." The Scholiast understood better. "Ad colorem oculorum retulit; habent enim Germani oculos caeruleos." Cf. Plotinus: *Enneads* 4.4.19]. Juvenal: 13.164. Vitruvius: *De Architectura* 6.1.3. Tacitus: *Germania* 4. Ausonius: 9.3.9-10. Vergil: *Aeneid* 8.659. According to the Ethiopic Alexander Book, the Gog and Magog had blue eyes and red hair. See E. A. Wallis Budge: *The Alexander Book in Ethiopia*, 138.

[12] Ptolemy: *Tetrabiblos* 3.12.5 Cf. Hephaestion: *Apotelesmatica* 4.21.31. Plutarch: *Sulla* 2.1. *Marcus Cato* 1.4. Sidonius Apollinaris: *Epistulae* 8.9.4 (verses 21 and 31), [on Saxons and Herulians], and *Carmina* 5 (Panegyric on Maiorianus), 238-40, [on Scythians]. According to Isaac I, Nestor, Priam, Pyrrhos and Aeneas all had γλαυκοί eyes, *De Operibus Homericis,* (pp. 82, 83, 85, 86, Hincks). So did the Scythian King, Sphendosthlabus, Leo Diaconus: *Historiae* 9.11 = Migne, *PG:* 117.884. Constantine, son of the Emperor Michael Ducas, combined the 'Germanic' traits of golden hair and γλαυκοί eyes, Psellus: *Chronographia* 7.12.

[13] Caesar: *BG* 1.39.1. Ammianus: 15.12.1.

[14] See further my comments on 2.36a infra.

[15] Moreover, in animals, eye-colour depends on the colour of the coat, so when one asks whether cats or tigers or horses have blue eyes, one must also specify what kind of cat or tiger or horse one means. General statements, therefore, are bound to be inaccurate. On the first point, cf. pseudo-Aristotle: *De Coloribus* 6 (797b.13 sq.)

[16] "The TAPETUM LUCIDUM... of mammals and some cartilaginous fishes lies between the vascular layer and the chorio-capillaris, where a 'layer' of fibres is met with in man... It is situated in the posterior region of the eye, usually above and lateral to the optic disc; and since the pignent of the retinal epithelium is lacking over it, the incident light falls directly upon it and is reflected... a beautiful iridescent effect is thus obtained, allowing the eye of the animal to shine with peculiar lustre in subdued light," Duke-Elder: *Textbook of Ophthalmology;* I.57. Cf. *System of Ophthalmology:* I.606-9. "The tapetum reflects the light strongly and on account of its stratified structure diffracts the light and gives rise to the different colours seen in the fundus," E. Wolff: *Anatomy of the Eye and Orbit* (6th ed.), (London 1968), 479.

[17] See infra, Chapter III.

[18] Aristotle: *G.A.* 5.1 (779a.26).

[19] *Ibid.* 5.1 (779b.10, 12), etc. Suetonius tells us that Nero had light eyes (*oculis caesis*) and weak sight (*hebetioribus*): Nero 51. According to Antiochus the astrologer, the waning Moon induces γλαυκώσεις, dim-sightedness, and other debilitating afflictions, *C.C.A.G:* 7.111.

[20] I infer they are light because they are associated with weakness, and because Adamantius writes of light shades (2.36b).

[21] Pseudo-Polemon's version of 1.8c takes the colours to be a sign of weakness. His précis runs, "ὀφθαλμοὶ ἀσθενεῖς γίνονται μὲν ἐν τοῖς χαροποῖς μᾶλλον ἢ ἐν τοῖς γλαυκοῖς. τέως δὲ περὶ τῶν γλαυκῶν ἀσθενῶν ὁ λόγος." Modern research suggests that there may be some truth in the ancient supposition. Dr. M. Millodot tested the sensitivity of the cornea in an experiment which involved 156 people, nearly all of them university students, and none suffering from any form of eye disease. They included Caucasian whites, Negroes, Indians, and Chinese. "The results of this study," he reported, "provide strong evidence that people with blue irises have the most sensitive corneas... It can also be seen that blue-eyed people have, on average, twice as sensitive corneas as white people with brown eyes... It may be inferred that corneal sensitivity reflects the general sensitivity of the body," *Nature* 255 (May 8th, 1975), 150-2.

[22] An anonymous Christian astrologer attributed γλαυκοί eyes to a thief, also described as immoderate, *C.C.A.G:* 7.91[5-8.] Notice that those who are intemperate in their pleasures create an irremovable γλαύκινον mark on their souls, Plutarch: *Moralia* (De sera numinis vindicta 26), 565c. Cf. Plato: *Phaedrus* 253e.

[23] Cf. Callistratus: *Imagines* 14.5.

[24] The necessity for this comforting doctrine may be illustrated by the references of ancient authors who, while professing admiration for certain aspects of bar-

barian temperament, were obviously afraid of it. See, for example, Caesar: *B.G.* 1.39. 2-5.

[25] Notice that, in 1.16, Adamantius distinguished between the eyes' sparkling (μαρμαρυγή) and their colour (γλαυκοῖς). Cf. Cornutus: 20a. T. F. Althaus's description of Mark Pattison contains an interesting picture of the effect such eyes can make. "[The aged appearance of his face] served, however, to bring into prominance the singular brightness of the grey eye, which, whether 'glittering' as it has been well described, with the light of some fresh thought, or fixed, as it occasionally was, in the compassionless rigidity of a 'stony glare'... must be regarded as his most striking feature." Quoted by J. Sparrow: *Mark Pattison and the Idea of a University,* (Cambridge 1967), 4. The same kind of effect is recorded of the Emperor Augustus. "He had clear, bright eyes (*claros ac nitidos*)... It greatly pleased him, whenever he looked keenly at anyone, if he left his face fall as if before the radiance of the sun," Suetonius: *Augustus* 79.2. According to Pliny, Augustus's eyes were light blue, *NH* 11.54 (143).

[26] *Human Heredity,* (2nd ed.), (Sphere Books, New York 1963), 244-5. Cf. J. S. Weiner: *Man's Natural History,* (London 1971), 139-40, and C. B. Davenport: "Heredity of Human Eye Colour." *Bibliographia Genetica* 3 (1927), 457-8, 449. Some similar observation may underlie Theophrastus's comment that μελανόφθαλμοι see better by day; the opposite, by night, *De Sensu* 42.

[27] C. L. Brace: "Human Variation and its Significance," apud Brace - Ashley Montagu: *Man's Evolution,* (London 1965), 271 and fig. 106. See also H. J. Fleure: "The distribution of types of skin colour," *Geographical Review* 35 (1945), 590-2. C. G. Brouzas: "Modern opinions about the blond type in Homeric and Classical Greece," *TAPhA.* 61 (1930), xxvi-vii, (summary). Solinus tells us that the Albanians had blue eyes (*glauca pupula*) and that they could see by night as well as by day, *Collectanea rerum memorabilium* 15.5.

[28] See W. C. Boyd: *Genetics and the Race of Man,* (Oxford 1950), 312, table 39.

[29] "The Inhabitants of the Eastern Mediterranean," *Biometrika* 13 (1920), 105.

[30] *Ibid.* 106.

[31] *N.H.* 6.24 (88). G. F. Hudson: *Europe and China,* (London 1931), 81. The Pamirs come from the Tudzhik republic, just North of the Hindu Kush. D'Ujfalvy de Mezö-Kövesd described the Galchas as tall, brown or bronzed and even white, with ruddy cheeks, black, chestnut, sometimes red hair, brown, blue, or grey eyes. Quoted in *Encyclopaedia Britannica* (11th ed.), s.v. Galchas. See also W. W. Tarn: *The Greeks in Bactria and India,* (Cambridge 1951), 110-11. Ahmed Fakhry recorded the theory that the Temehu of North Africa were a quite different race from those surrounding them, having fair skin, blond hair, and blue eyes. He presumed they came originally from Europe, *Siwa Oasis; its History and Antiquities,* 23.

[32] Pausanias 6.26.9. Apollodorus, apud Strabo 11.11.1.

[33] A similar tendency to generalise about Aryan foreigners is shown by the Chinese. An account of the Kirgiz (*Chien-k'un*), given in the T'ang history and dated 648 A.D. runs, "The people are all tall, with red hair, white faces, and green (*lu*) eyes," *Ch'in-ting Ku-chin t'u-shu chi-ch'eng,* section VIII, chüan 61, folio 1b.

Aelian

[34] Presumably to blend with the colour of the sea.

[35] Modern experts have advised me that these bulls are mythical. Nevertheless, it is not difficult to find mosaics of just such a type of bull. For example, there is one being dragged on board ship from Africa, bound for the Games in Rome. Its eyes are glaring, picked out in white and pinkish-grey chips. See G. V. Gentili: *La Villa Erculia di Piazza Armerina: I Mosaici Figurati,* (Rome 1959), plate 28, with details on

plate 29. A reddish-brown bull, mauled by a bear in the arena, is shown in a mosaic in Tripoli apud S. Aurigemma: *L'Italia in Africa: Tripolitania,* Vol. I, part 1, (Rome 1960), plate 156. Another, seen from the rear, appears in the Villa Adriana; S. Aurigemma: *Villa Adriana,* (Rome 1961), plate 16. Cf. also Euripides: *Cretans,* [Perg. Berol. 13217$^{14-15}$, (ed. C. Austin)], though literature is not the most reliable guide. Pausanias described rhinoceroses which he called 'Aethiopian bulls', but these are obviously not the same animals as those described by Aelian.

[36] *Greek Fishes,* 48. Cf. F. A. Wood: "an eatable fish of grey colour... a bluish-coloured fish... gleaming, silvery, bluish green or grey," 'Greek Fish-Names II', *AJPh.* 49 (1928), 49. E. de Saint-Denis: *Le vocabulaire des animaux marins en latin classique,* (Paris 1947), 32-3, s.v. glaucus.

[37] *H.A.* 8.13 (598a.13). Cf. Ovid: *Halieutica* 94.

[38] 1.3.5 (p. 13 Ruelle). Cf. Hippocrates: *De Visione* 1 = Littré 9.152.

[39] Plutarch: *Moralia* (De Pythiae Oraculis 2) 395b. Diodorus Siculus: 34 / 5.2.35. *P. Holm.* 17.2. Cf. "thalassina vestis", Lucretius: 4.1127.

[40] *De Mari Erythraeo* 1.7. Cf. Diodorus Siculus: 4.48, and J. Sichel: *Pierres Sigillaires,* (Paris 1866), 62.

[41] Isidore said that the fish was named from its colour, "a colore dictus eo quod albus sit; Graeci enim album †γλαυκόν† dicunt", *Etymologiarum Libri* 12.6.28. Mss. readings vary between λευκόν and γλευκόν, but γλαυκόν must be the correct reading here. Cf. Hesychius: γλαυκός = λευκός, one of his variant readings, and see my discussion of the development of γλαυκός, infra, Chapter III. For a picture of the tilapia, see M & R. Burton (edd.): *Encyclopaedia of Fish,* 229.

[42] Gillius's Latin translation, made in 1565, gives *album,* a rendering of λευκότητα. Gronovius (1745), Schneider (1784), and Jacobs (1832), all printed λευκότητα. Hercher (1864) printed de Pauw's emendation, and was followed by Scholfield (1958-9), both of whom noted the Mss. λευκότητα.

[43] *Moralia* (Quomodo adulator ab amico internoscatur 9) 53d.

[44] This passage does not appear in other editions. The 11th edition describes the chameleon thus: "[It] may be said to be greenish grey, changing to grass-green or dull black, with or without maroon red, or brown, lateral series of patches. At night the same specimen assumes as a rule a more or less uniform pale straw-colour."

[45] *Reptiles of the World,* (London 1910), 190.

[46] The mechanism of change consists of cells in the cutis which are filled with granules of guanine. Deeper layers cause a blue colour which reaches our eyes as green. See also K. P. Schmidt and R. F. Inger: *Living Reptiles of the World,* (London 1957), 90-1. Aristotle: *H.A.* 2.11 (503b.3-6) and fr. 371.

Agatharcides

[47] See further Pauly-Wissowa: 1.739-41.

[48] This wording is closely followed by Diodorus Siculus: 3.24.4.

[49] "'Εγένετο ὑλοφάγος κεράμβυξ" *Metamorphoses* 22.5. See M. Papthomopoulos, (Budé ed. Paris 1968), 119, note 15 ad locum.

[50] Cf. συκοφάγος, ἰχθυφάγος, καρποφάγος, κοπροφάγος, etc.

[51] Not *in* the woods, as Evelyn-White's Loeb translation puts it, *Opera et Dies* 591. Nor is Mazon's "pâture au bois" without ambiguity, (Budé ed. Paris 1928). Cattle will browse upon leaves when their normal fodder is not available, and will quite frequently strip the bark from certain trees. Willow, for example, appears to be a favourite in East Anglia.

[52] *Regimen* 2.49 = Littré 6.552. LSJM s.v. is mistaken in its first entry. Pauly-Wissowa: 9^1.126 identifies the Hylophagi with the Moschophagi mentioned by the anonymous author of *Periplus Maris Rubri* 2, presumably on the grounds that μο-

σχοφάγοι eat green things in the manner of calves, rather than eating calves themselves. But this goes against all other usage, which shows that x + φάγος = eat *of* x. Cf. Διονύσος μοσχοφάγος apud Scholiast to Aristophanes: *Ranae* 360.

[53] Strabo: 16.4.8-9. Diodorus Siculus: *loc.cit. supra.*

[54] Diodorus called the Astaboras the Asa. Agatharcides (50) called it the Astabara. For a detailed map, see C. H. Oldfather's Loeb edition of Diodorus (1967). J. Doresse suggested that it was perhaps the Baraka, [*Ethiopia,* trans. E. Coult, (London 1959), 20], but there seems to be no good reason for doubting that the Atbara is the river in question. Strabo's accurate description of its joining the Astapos near Meroe shows that that area was known, though it may be true that the Baraka was mistaken for one of its branches, the one which Strabo said flowed into the Arabian Gulf. W. D. Cooley identified it with the Mareb. See *Claudius Ptolemy and the Nile,* (London 1854), 27-30 and his frontispiece-map.

[55] H. R. J. Davies: 'Some Tribes of the Ethiopian Border-land between the Blue Nile and Sobat Rivers,' *Sudan Notes and Records* 41 (1960), 27. The Ganza are to be found in the Ethiopian foothills, south of Khor Yabus. D. Woelk points to the Nuer's famine diet of roots and seeds as possible marks of identification, *Agatharcides von Knidos,* (Dissertation, Bamberg 1966), 145. But in normal times the Nuer concentrate on fishing and hunting elephants, and I doubt if they have much in common with the tribe mentioned by Agatharcides. See also E. E. Evans-Pritchard: *The Nuer* (Oxford 1940), 75, referred to by Woelk.

[56] As will be seen from Woelk's extensive, but not very helpful, note: *op.cit.* 144-6. He does, however, firmly make the point that the Hylophagi were not monkeys, as was suggested, for example, by W. C. McDermott: *The Ape in Antiquity,* (Baltimore 1938), 69-70. The manner of life described by Agatharcides and Strabo is undoubtedly human. See W. B. Donne: *Dictionary of Greek and Roman Geography,* ed. W. Smith, (London 1854), s.v. 'Hylophagi.' Donne also suggested that they could be Shangallas, "[who] occupy these districts at the present day, and are scarcely less civilised."

[57] See K. M. Barbour: *The Republic of the Sudan,* (London 1961), 216-17.

[58] *Op.cit:* 194.

[59] Cf. the ancient Britons. "They plunge into the swamps and exist there for many days with only their heads above water, and in the forests they support themselves upon bark and roots," Dio Cassius: 77.12.4.

[60] Cf. Leo philosophus: *Conspectus Medicinae* 3.35, and Duke-Elder: *System of Ophthalmology* 3.728, *Ibid.* 11.98, 155-6. I am informed by Dr. F. A. R. St. John that constant endogamy can also play a part in producing a tendency to congenital cataract, for example in Morocco, for which see E. Westermarck: *Marriage Ceremonies in Morocco,* (London 1914), 53-6. A sixteenth century commentator on Galen has the curious remark, "glaucos habentes oculos ante senectutem caeci evadant," *Ars Medica* (1541), 248. This sounds like no more than wishful thinking.

Alexander

[61] See Pauly-Wissowa: 1.1459-60. M. Wellmann: "Alexander von Myndos," *Hermes* 26 (1891), 481-566.

[62] *Greek Birds* s.v. E. Coues denied any colour connection at all between γλαῦξ and γλαυκός, *The Coues Checklist and Ornithological Dictionary,* 2nd ed., (Boston 1882), s.v.

[63] See supra, Appendix D.

[64] J. Delacour: *The Waterfowl of the World,* 4 vols., (London 1954-64), 3.177.

[65] See also the play between γλαῦξ and γλαυκός in Antoninus Liberalis: *Metamorphoses* 15.2, Gregory Naziazenus: *Carmina* 1, section 2.28[235-8] = Migne, *P.G.* 37.873-4, and *A.G.* 7.425 (Antipater of Sidon).

66 See Ali-Ripley 1.203. The female has dark lead-grey irides tinged laterally with green, but this does not fit the colour of γλαυκός. The bird winters in the Mediterranean area.

67 See M. Meyerhof: *A Concise Etymological Sanskrit Dictionary,* (Heidelberg 1963), s.v. Cf. Pali and modern Tamil. The latter has a large number of compound words in which *nīl* can mean dark blue or light: *nīla-k-kal* = sapphire; *nīla-k-kāli* = indigo; *nīla-kaṇṭaṅ* = Shiva with the azure neck; *nīla-p-pukār* = faint blue dye.

68 J. Filliozat: "Classement des couleurs et des lumières en sanskrit," apud I. Meyerson: *Problèmes de la Couleur,* 305.

Anatolius

69 See Pauly-Wissowa: 1.2073-4. But the attribution is disputed. See also Boudreaux's note in *C.C.A.G.* below the text.

70 Or 'broad-faced', (πλατυπρόσωπα).

Antiochus

71 Attribution is disputed. For further details, see *C.C.A.G:* 7.107.

72 ἀμβλυωπίας.

73 λέπρας. This is not only what we mean today by leprosy. As can be seen from the Greek plural, the term covered a variety of disfiguring skin diseases. On this point, see further Methodius Olympius, supra 62-3.

74 γλαυκώσεως ῥευμάτων = cod. Cf. Vettius Valens, apud *C.C.A.G:* $5^2.61^{22}$.

75 For example, Aristotle: *G.A.* 5.1 (780a.16sq.). Hippocrates: *Aphorisms* 3.31 = Littré 4.502 (γλαυκώσεις). Aelian: *N.A.* 7.14 (ὑπόχυσιν).

76 See, for example, Rufus of Ephesus (2nd A.D.): fr. 116. Aetius of Amida (6th A.D.): *De Oculorum Natura* 52. Galen: *Definitiones Medicae* 363 = K19.438.

77 J. Hirschberg: "Geschichte der Augenheilkunde," Graefe-Sämisch: *Handbuch der gesamten Augenheilkunde,* Vol. 12 (Leipzig 1899), 88-91.

78 E. S. Perkins and P. Hansell: *An Atlas of Diseases of the Eye,* 2nd ed. (London and Edinburgh 1971), 40-1.

79 *Definitiones Medicae* 344 = K19.435 and *Ibid.* 363 = K19.438.

80 *Medicus* 16 = K14.775.

81 *De oculis, eorumque aegritudinibus et curis,* (Ferrara 1474). One of his sources may have been Demosthenes Ophthalmicus apud Aetium: *Libri Medicinales* 7.53, q.v.

82 J. Walker: *Folk Medicine in Modern Egypt,* (London 1934), 107. One may note here, as a matter of interest, the Sanskrit terms for glaucoma: (a) *Samudravarṇah,* sea-colour, (b) *ghananīlah,* an intense blue, and (c) *śyāmaharit,* which appears to be dark amber, and is therefore rather an odd term for this disease. An admirable summary of the term *glaucoma* is given by A. Feigenbaum: 'Le terme 'glaucome', son histoire et son premier usage populaire connu dans l'Antiquité pour désigner une certaine espèce de cécité," *Le Scalpel* 112 (1959), 396-400. Feigenbaum regularly translates the colour-term as *gris-bleuâtre* or *bleu pâle.* Duke-Elder, on the other hand, was of the opinion that γλαύκωμα referred to the dull sheen or glaze of blindness, with no special implication of colour, while ὑποχύμα was coloured white or blue-green, *System of Ophthalmology* 11.380. There is a discussion of Celsus by C. Snyder: "Aurelius Cornelius Celsus on Cataracts," *Our Ophthalmic Heritage,* (London 1967), 27-30. Pictures of cataracts may be found in Waardenburg-Franceschetti-Klein: *Genetics and Ophthalmology,* (Oxford 1961), plates 25-30.

Antoninus liberalis

83 I.e. Athene.

ANTYLLOS

[84] For details, see Pauly-Wissowa: 1.2644.
[84] See also 10.27.9 and 10.27.16.
[86] *De Materia Medica* 3.86.
[87] 27.56 (83). The passage is obviously derived from Dioscorides. Cf. Galen: "γλαύκιον στύφει μετά τινος ἀηδίας," *De simplicium medicamentorum temperamentis ac facultatibus* 6.3.5 = K11.857.
[88] For example, W. C. A. Ker, ad Martial: 9.26.2. "Greater celandine rather than horned poppy," (Loeb ed. 1919). E. S. Forster, ad Columella: *De re rustica* 10.104 translated *glaucea* by 'celandines' and added a note, "Chelidonium glaucium," (Loeb ed. 1941). O. Polunin seems to agree. On *Chelidonium* he says: "The orange sap is purgative and poisonous: formerly cultivated and used as a herbal remedy for corns, warts, and eye infections," *Flowers of Europe,* no. 274. Neophytos Prodromenos, a writer of the 14th century, glossed the word with "χυλός ἐστι βοτάνης," but he was the only one of later commentators to do so. See A. Delatte: "Glossaires de botanique," *Anecdota Atheniensia et Alia* II, (Paris 1939), 283.
[89] See also A. Carnoy: *Dictionnaire étymologique des noms grecs des plantes,* (Louvain 1959), s.v. H. Gilbert-Carter: *Glossary of the British Flora,* 3rd ed., (Cambridge 1964), s.v. Pliny said that *glaucion* was a variety of the horned poppy, *N.H.* 20.78 (205). This is not the μήκων κερατῖτις of Theophrastus: *H.P.* 9.12.3, which is more like *Glaucium flavum.* An anonymous lexicographer made the same mistake, "γλαύκιον μήκων ὁ κερατίτης ὁ παράλιος," Delatte: *op.cit.* 373.
[90] *De Materia Medica* 2.180.1.
[91] Dioscorides: *De Materia Medica,* new ed., 2 vols. (Madrid 1968-9), I.330. *Memitha* seems to be derived from the Syriac *Mamitha,* 'the killer', which is listed in *Thesaurus Syriacus* as 'glaucium phoenicium, Greek γλαύκιον'. Its Syriac name must refer to the poisonous sap. Cf. Nicolas Hieropais: "γλαύκιον — γλαύκιο — μεμιθέ — ὀπὸς ὡς κόμμι," Delatte: 399. "γλαύκιον — γλαύκιο — γλάνκιουμ — μεμιθά — σαν μεμιθά," Anon. apud Delatte: 434.
[92] Dioscorides: *De Materia Medica,* new ed. R. T. Gunther, (Oxford 1934).
[93] Delatte: 322, 332, 362, 379.
[94] Democritus apud *Geoponica:* 13.11.1.
[95] Polunin's photograph, *op.cit.,* plate 29, shows the plant as almost light blue, but this is due in part to the falsification which takes place in colour-photography and printing. Cf. the picture of *Glaucium flavum* in *Encyclopaedia Britannica* (15th ed.), sub 'Horned Poppy'.
[96] I am aware that Dioscorides said that γλαύκιον referred to the yellow juice of the plant, but this could mean simply that the juice took its name from the plant itself, as orange-juice is so called not because of its colour but after the fruit from which it comes. Γλαύκιον was used for a number of medical purposes, but its main virtue seems to have been the ability to ease inflammation of one kind or another. See, for example, Dioscorides: *De Materia Medica* 1.64.4 and *De Simplicibus Medicamentis* 1.57.2. Cf. Galen: *De sanitate tuenda* 6.12 = K6.439, (inflammation, particularly of the ears). Galen: *De methodo medendi* 14.4 = K10.954 etc. (erysipelas). *De compositione medicamentorum secundum locos* 4.5 = K12.722, etc. [Cf. Harpocration: apud *C.C.A.G:* 8^3.141, 142, 149 (eye-salve)]. Galen: *De compositione etc.* 10.3 = K13.358 (gout and rheumatism). Γλαύκιον was used also as a pain-killer and a sleeping-pill, Galen: *op.cit.* 4.8 = K12.748. See also Pomponius apud *Digest* 34.2.21 and Scribonius: *Compositiones Medicamentorum* 22. There is an illustration of *Glaucium corniculatum* in the *Codex Vindobonensis,* (Graz 1970), 90. Compare this with the picture of *Glaucium flavum* (called κερατῖτις in the text), *Ibid.* 226. There is also

an illustration in pseudo-Apuleius: *Herbarius* 74 of a plant which looks a little like *Glaucium flavum.* It is labelled *Celidonia,* for which is given the alternative Greek name *glaucius* (sic). The employment of the juice for eye-diseases may not have been a good idea. J. Sichel recorded, "il y a plusieurs années, j'ai eu à traiter un paysan qui, atteint d'une légère conjonctivite, s'était instillé dans l'oeuil, d'après le conseil de quelque commère, le suc irritant de chélidoine, par lequel la maladie, primitivement insignifiante, avait été transformée en une ophthalmie des plus violentes," *Pierres sigillaires,* 104. This section on Antyllos first appeared, under a different form, in *RSC* 24 (1976), 319-20.

Apsyrtos

[97] See M. C. Self: *The Horseman's Encyclopaedia,* (London 1946), 115.

Aristeas

[98] This is repeated by Josephus: *A.J.* 12.113.

[99] Cf. Harpocration, apud *C.C.A.G.* $8^{3}.149^{21}$, Plutarch: *Timoleon* 37.6, Ptolemy *Tetrabiblos* 3.12.10, Vettius Valens: p. 69^{10} (Kroll).

Aristotle

[100] Cf. Origen: *Refutatio* 7.18 = Migne, *P.G.* 16^{3}.3298, which seems to be a reminiscence of Aristotle: *Categoriae* 5 (2b.1). Cf. also pseudo-Archytas: "These notions and categories have both common and individual characteristics... It is not possible to be more, or less, man or god or plant... [Man] exists of himself and not in something else, as γλαυκότατα and χαροπότατα are essences belonging to eyes," *Decem Praedicamenta,* ed. T. A. Szlezak: *Pseudo-Archytas über die Kategorien,* (Berlin-New York 1972), 34-5. The text is from Simplicius: *In Categorias Aristotelis Commentarius* 5 (ed. Kalbfleisch, pp. 92-3). The last phrase is repeated, *Ibid.* p. 96^{29}. Chaignet, who accepted the fragment as genuine, translated the passage into French and rendered γλαυκότατα and χαροπότατα by *glauque* and *bleue* respectively, *Pythagore et la philosophie pythagoricienne,* 2 vols. (Paris 1873), 1.319-20. See also *Ibid.* 1.193-4, 201 sq.

[101] Platt's note clarifies the passage. "The eye of a lion is always brown, and accordingly we say that this is a protective colour, like that of his coat. But when we find that in man some eyes are blue and some brown we can no longer say that... the colours are for a final cause," (Oxford 1910). Γλαυκοί eyes are certainly not for protection; they are produced by heredity, as in the cat. See also the commentary of Philoponus ad locum, who clearly emphasises the linguistic link between γλαῦξ and γλαυκός — "ὥσπερ τῆς ὄρνιθος τῆς καλουμένης γλαύκης ἡ γλαυκότης."

[102] This is not quite true. Animals' eyes vary in colour according to their breed. It is a general rule, though, that if an animal has a light-coloured coat (owing to the degree of albinism in its hereditary composition), its eyes will probably be of a light colour also. Light eyes, as light coats, are hereditary. As pseudo-Aristotle says, "the colour of the eye follows that of the body," *Problemata* 10.11 (892a.1-5). Cf. *Ibid.* 14.14 (910a.13-23). Cf. also Hippocrates: "Parents with γλαυκοί eyes will produce children with γλαυκῶν eyes," *De aeribus, aquis, locis* 14 = Littré 2.60.

[103] Cf. Adamantius: 1.8b, and pseudo-Polemon ad Adamantium: 1.8c. Both Aristotle and Galen attributed this weakness to a lack of fluid in the eye. Aristotle: *G.A.* 5.1 (779b.18, 30), *Ibid.* (780a.1), *Ibid.* (780b.2-3), etc. Galen: *Ars Medica* 9 = K1.330. In his Budé edition, (Paris 1961), P. Louis translated the last phrase as "or le couleur bleu est une couleur faible," which is not what the Greek says.

[104] Cf. Adamantius on eyes whose ἴτυν πυρράν shines inwardly, as though lit by flames, 1.11. The weakness of γλαυκά eyes was denied by Pliny: "caesi in tenebris clariores," *N.H.* 11.54 (142), an assertion which finds support in experiments carried out by Platt and one of his colleagues to test the validity of Aristotle's assertion that light eyes are weaker than dark. They found that, if anything, the reverse is true. This conclusion was intimated earlier by Nicholas Culpeper in his 'translation' of and commentary upon Galen's *Ars Medica.* "I cannot believe," he said, "the Sight is stronger in gray Eyes than in black, but rather the contrary," (London 1671), 30. Perhaps because of the verbal link between γλαῦξ and γλαυκός, the owl was supposed to have weak eyes. Observation, too, would show it blinking in strong sunlight. See Aelian: *N.A.* 3.9, who borrowed from Aristotle: *H.A.* 9.1 (609a.8-10). The theory that weakness of vision is caused by a deficiency of fluid has no basis in fact.

[105] This was quoted by Galen: *Quod animi mores corporis temperamenta sequantur* 7 = K4.797. "σφόδρα γλαυκόν" is a little ambiguous. St.-Hilaire (1883) translated it as 'bleu foncé'; D'Arcy Thompson (1910) as 'distinctly blue'; Louis (1964) as 'franchement bleu', and Peck (1965) as 'quite blue'.

[106] Cf. Pliny: *N.H.* 11.53 (141) and Hesychius: γλαυκοφόρβιδας = ἵππους εὐγενεστάτας.

[107] Cf. Adamantius: 1.8b and 2.36b. Camillo Baldo was quite clear that there is a difference in meaning between γλαυκός and χαροπός. The former he rendered by *caesius,* the latter by *fulvus.* On γλαυκός he said further, "colorem glaucum, vel caesium, quem proprie videmus in flore lini," *In Physiognomica Aristotelis Commentarii* (1621), 56.

[108] See the discussion of Adamantius: 2.31 on this point. E. S. Forster translated γλαυκός in 10.11 as *grey* and in 14.14 as *blue,* (Oxford 1927), without any good reason for doing so.

[109] See Duke-Elder: *System of Ophthalmology,* 2.169. Cf. Galen: "Hippocrates says the eye has two membranes; later writers say three or four. The external 'coat' is known as the cornea. Λευκός in respect of the rest of its parts, and thin in the neighbourhood of the iris, it lets through the underlying colour, according to whether it is μέλας or γλαυκότερος or χαροπός," *Medicus* 11 = K14.712. This is an interesting attempt to explain the reflection of light from the epithelium through the stroma. Notice again the comparative form of γλαυκός, intimating a range of shades. Comparison with the sky is not fortuitous. Nigidus tells us that *caesius* is the equivalent of γλαυκῶπις, derived from the colour of the sky, Aulus Gellius: *N.A.* 2.26.19.

[110] I am grateful to the following hospitals for supplying the figures upon which this total is based: Cambridge Maternity Hospital, Harrogate Infirmary, Manor Maternity Hospital, Walsall. I have also collected figures by private inquiry in Cambridge and London.

[111] The Arabic translation of *G.A.*, commonly attributed to Yaḥyā ibn al-Biṭrīq, used both *shuhal* (bluish black) and *zaraq* (light blue) in this passage, perhaps indicating thereby an awareness of the actual variations in blue which can be observed. On the other hand, γλαυκότης at 778a.18 is translated as *shuhūla,* which leads one to ask oneself if the Arabic at 779a.26 is not simply hedging its bets. *Zaraq* is the normal Arabic word for blue, whereas *shuhal* seems to be used only of the eyes, and only as a technical translation-term. Cf. the Arabic version of Hippocrates: *De aeribus, aquis, locis* 14 = Littré 2.60, where γλαυκός is again translated by *shuhal.*

[112] See the commentary on Adamantius: 2.31, supra 14-15.

[113] A. L. Peck put the work between 347 and 335 [revised Loeb. ed. 1963, viii]. P. Louis suggested that preliminary drafts were made between 348 and 332 [Budé

ed. 1961, xi]. See also H. D. F. Lee: "Place names and the date of Aristotle's biological works," *CQ* 42 (1948), 61-7, [summarised in *PCPhS* 179 (1948), 7-9]. His discussion refers mainly to *H.A.* and concludes that Aristotle's period of residence in Lesbos gave him excellent opportunities for research in marine biology. This conclusion is accepted by R. Lane Fox, [*Alexander the Great,* (London 1973), 53] though I think he claims rather too much when he says there that "observations for his astonishing works on zoology can be shown to have been made almost exclusively on the island of Lesbos." Lee's article does not say that, and more work needs to be done on Aristotle's zoological work before we can be sure of exactly where he did his various pieces of field-research.

114 The more general term can refer to the specific, but it is rather unusual. See, for example, Hippocrates: *Epidemiae* 4.44 = Littré 5.184 and *Prorrheticum* 2.19 = Littré 9.46. Cf. J. Brunschwig: "Sur quelques emplois d' ὄψις," *Zetesis* [Festschrift for E. de Strycker], (Antwerp-Utrecht 1973), 24-39. C. Mugler: *Dictionnaire historique de la terminologie optique des Grecs,* (Paris 1964), sub ὄμμα and ὀφθαλμός. For an excellent summary of the pigmentary system of the eye, see Ashley Montagu: *Human Heredity* (2nd ed.), 244-6. For a technical but clear description of the development of pigment in the eye, see Waardenburg-Franceschetti-Klein: *Genetics and Ophthalmology,* 693. The phenomenon of blue eyes is also to be found in the animal kingdom. Nearly all Persian kittens' eyes are blue, for example, and change only as the animal becomes older, W. Hally apud E. Parker: *Oddities of Natural History,* (London 1943), 40. Leverets, too, are born with blue eyes, E. Parker: *Game Birds, Beasts, and Fishes,* (London 1935), 140.

115 I am informed by Mr. T. R. Bowen that Welsh ponies used to be particularly admired for a condition known locally as 'silver-eye' which is the same as the more familiar 'wall' or 'china-eye', i.e. light blue.

116 *Cesti* VII, fr. 8[15-18], ed. J. -R. Vieillefond, (Paris 1932). This is a curious work, not simply a stud-book, but a collection of magic recommendations, as the title (*Talismans*) indicates. See Vieillefond, xiii-xiv. G. Björck, however, regarded it as a parody of magic books. "Apsyrtos, Julius Africanus, et l'hippiatrique grecque," *Uppsala Universitets Årsskrift* 1944, no. 4, 24-5.

117 See supra, Appendix E.

118 Pelagonius, apud *Geoponica* 16.2.1. Cf. the proper name Γλαύκιππος which may be derived from γλαυκός applied to horses' eyes. See P. Chantraine: "Grec γλαυκός, Γλαῦκος et mycénien Karauko," *Mélanges offerts à J. Carcopino,* 200. According to Pliny, Augustus had glaucous eyes like those of horses—"divo Augusto equorum modo glauci fuere," *N.H.* 11.54 (143).

119 *Cynegetica* 1.308. That γλαυκός refers to the horse's eyes and not to his coat is shown by the preceding verses, 305-7. Cf. Adamantius: 2.36a.

120 G. J. de Vries's comment, "This colour was not admired," [*A Commentary on the Phaedrus of Plato,* (Amsterdam 1969), 167] is not altogether to the point, since he refers to Lucian and Philostratus, neither of whom mentions lust, violence, or intractability in connection with γλαυκοί eyes.

121 *Moralia* (De sera numinis vindicta 26) 565c. Plato's horse probably had 'wall' or 'china' eyes. "In these," said M. C. Self, "the eyeball is perfectly clear and the sight is unimpaired but the pigment is a light blue instead of brown. Glass [i.e. *wall*] eyes are quite common in spotted horses and in Albinos," *The Horseman's Encyclopaedia,* 115. Cf. Gaylord Simpson: *Horses,* 72. There is no suggestion in Aristotle, of course, that the eyes are diseased or at all impaired. Apsyrtos was of the opinion that heterophthalmia indicated weak sight, but noted that the Parthians liked best horses with this trait, especially if they were piebald, *Hippiatrica Berolinensia* 13. G. Ryle had advanced the suggestion that the *Phaedrus* was delivered at the Olympic Games of 360 B.C. Among other indications of this venue, he reminds us

of the two bronze horses, one beautiful, the other ugly, dedicated at Olympia by Phormis. "The erotic frenzy reputedly induced in real horses by the ugly bronze horse at Olympia very powerfully reminds us of the erotic frenzy that is displayed by the ugly horse itself in the *Phaedrus,*" *Plato's Progress,* (Cambridge 1966), 265-7. I suppose it could be argued that γλαυκός refers not to the eyes but to the patina overlaid on the bronze, as it does in Plutarch: *Moralia* (De Pythiae Oraculis 4) 396c, q.v. But since both horses were made of bronze it is unlikely that one would have become patinated and not the other. It is more probable, therefore, that the eye is intended.

[122] Perhaps it should be noted again that Aristotle's liquid theory in relation to colour is not correct. The colour of an iris depends on the amount of pigment which is present.

[123] A. Landsborough Thomson: *A New Dictionary of Birds,* (London 1964), s.v. 'Vision'. Cf. Duke-Elder: *System of Ophthalmology,* 1.424-5, and C. W. Beebe: "When you see an owl in the daytime with eyes dull and glazed, this third eyelid is drawn partly across them, diluting the strong glare of light and yet enabling the bird to distinguish much that is going on," *The Bird, its Form and Function,* (London 1907), 214.

[124] IPC Magazine: *Birds of the World,* Vol. 9, part 7, no. 103 (1971), 2881.

[125] Xenophanes: fr. 14.2^3. Bicknell: "A note on Xenophanes's astrophysics," *AClass* 10 (1967), 135-6.

[126] Empedocles: fr. 374. Plutarch said that this applied to the Moon in eclipse, *Moralia* (De facie quae in orbe lunae apparet 21), 934d. Cf. Hegesianax: fr. 1^2.

[127] Anatolius, apud *C.C.A.G:* $8^3.188^{19}$. As a matter of interest, G. F. H. Smith noted that feldspar, known as moonstone, has a beautiful blue bloom, *Gemstones* (14th ed.), 384.

[128] Supra, sub Antiochus apud *C.C.A.G:* 7.111.

[129] See further Appendix D. Notice that both Empedocles (fr. 374) and Nonnos (*Dionysiaca* 5.70) called the Moon γλαυκῶπις. See also my remarks sub Plutarch: *Moralia* 934d. Notice the word play by Gregory Naziazenus: *Carmina* 1, section 2.28^{235-8} = Migne, *P.G:* 37.873-4. Aristotle described the nictitating membrane in *H.A.* 2.12 (504a.24-7). The tawny owl (*Strix aluco*) has bluish-black eyes with purplish orbits. See B. Campbell: *The Dictionary of Birds in Colour,* (London 1974), 336 s.v. I have a photograph which shows *Strix aluco sylvatica* with brilliant light blue eyes, but the effect was almost certainly caused by the flash used by the photographer.

[130] This work may have been written by Nicolas of Damascus, (1st century B.C.) See G. Sarton: *A History of Science,* Vol. 2 (Harvard 1959), 382, 443-5. See also Pauly-Wissowa: 17.362-424.

[131] The olive, for example, does not like extremes of temperature. Fabianus, apud Pliny: *N.H.* 15.2 (4). Cf. Columella: 2.8.5. Mr. J. E. Raven informs me that he consulted a skilled and experienced gardener on this point and was told that tomato plants can turn blue in the cold. It is not likely that tomato plants are unique in this respect, and it may be literally a matter of degree between turning black or turning blue in a sharp or less sharp frost.

[132] For example, in North Africa where the phenomenon has been observed. In cold winters conifers, which are typically glaucous plants, cease to photosynthesise and this may produce an aged or dull appearance.

[133] These remarks are based on information from Dr. T. R. Swain of the ARC Biochemistry laboratory at Kew, Dr. E. C. Bate-Smith, Dr. W. T. Stearn, Professor P. W. Brian, and Dr. W. Greuter of the Conservatoire et Jardin Botanique in Geneva. I am most grateful to all these gentlemen for their efforts to make sense of these passages. Honain ibn Isaac's Arabic translation of *De Plantis* added his own

explanation to the text. "In those plants which have fine parts, the colour of the flower will be like shining blue (*al-azraq al-lāmi'*) and when the parts are not compressed, they incline to whiteness," [ed. A. Badawi, (Cairo 1954), 278]. The γλαυκόν which follows is rendered as *azraq dākin* (dark blue). It must be added that the text of Honain is not as clear as it might be. One may note, however, Scaliger's comment on this passage, "Sapphirinum sane colorem tum ibi, tum in Ambubeis floribus conspicari licet," (1556 edition, 216).

134 See supra, Addendum to Adamantius.

135 Platt noted, "ὑδαρής a pale yellow or perhaps greenish," but this is not confirmed by other usage, and in any case, sheep do not have pale yellow or greenish eyes.

136 I am grateful to Dr. R. Connan and Dr. K. C. Barnett for their information on these points.

137 For example, Pherecrates, fr. 70. Alexis, fr. 226 and 230. Xenophon: *Lacedaemon.* 1.3. Hippocrates: *De aeribus, aquis, locis* 9 = Littré 2.40. Hippocrates also used ὑδαρής of fluid stools, *Prognostic* 11 = Littré 2.136.

138 *Prognostic* 12 = Littré 2.140.

139 Theodore Gaza may have seen the point, since he rendered ὑδαρές by *aquini* which may be a misprint for *aquili*, 'swarthy' or 'dark in hue.'

140 Similarly, Peck: 'pallid' and Louis: 'pâle.'

141 Philoponus ad locum may have been hinting at the same kind of effect, though his explanation is not in the least clear. "τὸ γὰρ ἐν τοιούτῳ χοιλώματι γῆς ὂν ὕδωρ οὔτε μέλαν ὁρᾶται οὔτε γλαυκόν, ἀλλ' ἁπλῶς ὕδωρ."

Pseudo-Astrampsychus

142 I am grateful to Mr. M. O' Donaghue of the British Museum Library for confirmation of these geological points.

143 *Theophrastus on Stones,* 91-2, 147-8. Cf. Pliny: *N.H.* 37.15 (55-61). The *Encyclopaedia Britannica* (11th ed.) defined corundum thus: "A mineral (Al_2O_3), remarkable for its hardness and forming in its finer varieties a valuable gem-stone." See also J. Bauer and F. Tvrz: *A Field Guide in Colour to Minerals, Rocks, and Precious Stones,* (London 1974), nos. 512 and 514.

144 "Lapis adamas; Der Blutstein," *Hommages à Marcel Renard,* [ed. J. Bibauw, (Brussels 1969),], 66-82. Certain blue diamonds have what is called a 'steely' shade —actually a tinge of green— but these are rare. See G. F. H. Smith: *Gemstones* (14th ed.), 251.

145 It is worth noting that diamonds of the 'first-water' are most prized when devoid of any colour save perhaps a slight shade of blue, though not everyone would agree with this. See E. H. Kraus and C. B. Slawson: *Gems and Gem Materials,* 5th ed. (New York and London 1947), 124. The term *adamantine* used by jewellers refers to "the splendent lustre of the diamond and [is] possessed only by substances with high indices of refraction," Kraus-Slawson: *op.cit.,* 47. See also B. W. Anderson: "The classification of diamonds on the basis of their absorption and emission of light," *Journal of Gemmology* 9 (1963), 44-54. Epiphanius said that the *adamas* resembled the colour of the air (κατὰ τὴν χροιὰν τῷ ἀέρι... ἀερίζων), *De Gemmis* = Migne, *P.G.* 43.301. However, as he was describing a stone which appears to have magical properties, his evidence is perhaps not as helpful as it might be. But one must also remember that pseudo-Astrampsychus's stone was used as an amulet.

Astrologers

146 Εὐειδεῖς δὲ ταῖς ὄψεσιν. Since the author has just mentioned the colour of their eyes (ὀφθαλμούς), I presume the rest of his sentence applies to the astronomers'

general appearance. The observation is repeated at $5^1.203^{1-2}$, $5^1.224^{28}$, and $8^4.180^{17}$. It is likely that this extract should be dated post 379 A.D.

147 By a Byzantine author. There seems to be no very good reason for thieves' having γλαυκοί eyes, although Adamantius did point out that people with such eyes are particularly fond of money, (1.8a). Cf. *C.C.A.G:* 4.89^8, and see further P.G. Maxwell-Stuart: "A Guide to Thieves," *RSC* 23 (1975), 333-6.

148 Cf. Rhetorius of Egypt (6th century A.D.), "Cronos causes...γλαυκώσεως," *C.C.A.G:* $8^4.187^{29}$.

149 Μαλακός. We are being given distinct indications of physique and character which should enable us to recognise the thief without much difficulty. 'Coward', therefore, especially in view of a previous epithet 'violent' seems a less likely translation. For μαλακία meaning homosexuality, see for example Plutarch: *Caius Gracchus* 4. I suspect that the Scythian *Enareis* (Herodotus: 1.105; 4.67) were homosexuals or transvestites, since Aristotle tells us that μαλακία was hereditary in the Scythian Royal Family, (*E.N.* 7.7.6), and at least one school of medical thought held that effeminacy was inherited. [Parmenides, fr. B18 (Diels), quoted with approval, and reiterated by Soranus apud the Latin translation by Caelius Aurelianus, *Tardarum Passionum Libri V:* 4.134-5. See I. E. Drabkin's note ad locum in his edition, (Chicago 1950)]. Others, however, have suggested that the condition was caused by disease, probably some form of orchitis, but none of the suggestions is wholly convincing. See E. H. Minne: *Scythians and Greeks,* (Cambridge 1913), 45-6, note 6, and R. W. Macan on Herodotus: 4.67, with special reference to Rosenbaum there cited. Ammianus said that the Huns grew old, "without beards and without beauty, like eunuchs," (31.2.2.). Perhaps a similar physical impression misled Herodotus into thinking that the Scythians were afflicted with disease. T. Talbot Rice thought that the *Enareis* were magicians, chosen always from tha same families, who wore female dress and may have been eunuchs. She adduced, however, no reference in support of this, *The Scythians,* (London 1957), 85. Cf. a letter from Demophon to Ptolemy, asking him to send Zenobius, "τὸν μαλακόν", with his drum, cymbals, and castanets, *P. Hibeh* 54. 11-12. Grenfell and Hunt suggested that μαλακός could be either a nickname or the style of his dancing. In the light of my previous remarks, I think the former more likely. Γλαυκοί eyes are elsewhere associated with paederasty. See Phoenix of Colophon IV.132, Anon. Byzant.: *Physiognomica* 3, and Anon. Latin: *Physiognomica* 85, [both edited Forster, II]. *C.C.A.G:* 7.91, like the two following extracts, is by a Christian author for whom no date is given.

150 Part of an Hermetic tract. Cf. Aetius: 7.43 and Galen: *De remediis parabilibus* 2.4.13 = K14.414.

151 Aetius: 7.115.

152 *Prognostic* 12 = Littré 2.140. *Articulations* 86 = Littré 4.324. Hippocrates also used ὑποπέλια and ὑπόχλωρα in the same passage. See also *Epidemiae* 3.14 = Littré 3.96 where he used ὑπόλευκον, both words intended to describe the effects of consumption. Cf. Thucydides: 2.49. Notice, too, that ὑπερυθριάω describes the flush of embarrassment, Aristophanes; *Plutus* 702, and ὑπερυθραίνω the application of rouge, which would impart a dull, matt colour to the skin, Aetius: 8.6.

153 Cf. Hippocrates, "φλεγμονὴ ὑπολάπαρος ἐκ τοῦ ἔσω μέρεος," inflammation which is soft underneath from inside, *Epidemiae* 1.13, case 12 = Littré 2.710.

154 Alexander of Myndos apud Scholiast to Theocritus: 5.96. See also D'Arcy Thompson: *Greek Birds,* s.v. φάσσα; R. K. Murton: *The Wood-Pigeon,* (London 1965), 23 and coloured frontispiece.

155 J. Dorst: *The Life of Birds,* trans. I. C. J. Galbraith, 2 vols. (London 1971), 1.56. Cf. ὑπολευκαίνεται, describing grey hairs beginning to show through as the dye wears off, Lucian: *Dialogi Meretricium* 11.3.

[156] *H.A.* 9.14 (616a.15).

[157] Aristotle's text was translated by Pliny as, "parte inferiore tantum purpurea," *N.H.* 1047 (89), although his text is disputed. One manuscript reads, "ex parte interiore," which certainly suggests reddish feathers among the blue. See, however, E. de Saint-Denis: "Un manuscrit de Pline l'ancien ignoré des philologues," *RPh* 3rd series, 34 (1960), 44-5. See also R. Eastman: *The Kingfisher,* (London 1969), colour-plates opposite 65.

[158] Pseudo-Aristotle: *Physiognomica* 3 (807b.7). Lucian: *Toxaris* 19. It will be seen from this survey that I do not quite agree with the conclusions of J. Humbert: *Syntaxe grecque,* 3rd ed. (Paris 1960), 343.

[159] *Griechische Wortbildungslehre,* (Heidelberg 1917), 136-7. See also R. Arena *Note Linguistiche a proposito delle tavole di Eraclea,* (Rome 1971), 9-27.

[160] Apud Aetium: 7:53.

[161] Apud *Geoponica* 9.17.1.

[162] Apud Athenaeum 7.320d. See D'Arcy Thompson: *Greek Fishes* s.v. σκόρπαινα. He called it 'dingy brown'.

[163] *Acharnenses* 1047. Cf. 'boiling the hair ξανθός', *Comica Adespota,* fr. 289.

[164] Apud Athenaeum: 7.281f. See D'Arcy Thompson: *Greek Fishes* s.v. ἀλφηστής. There is also a new word, ἐγχρυσίζω, 'of a golden appearance,' E. J. Doyle: "Two New Fragments of the Edicts of Diocletian on Maximum Prices," *Hesperia* 45 (1976), 84. Doyle compares it with ἐναργυρίζω.

Pseudo-Athanasius

[165] Migne, *P.G.* 28.541. See also *Ibid.* 531-4.

Basil

[166] Migne, *P.G.* 32.333. This letter was written in 369 or 370 A.D. Basil's knowledge of the order in which the colours of the spectrum are arranged appears to be faulty. For a comparison of his account with those of other writers, see Appendix C.

Callimachus

[167] Apud Athenaeum: 9.391c = fr. 100c, [ed. O. Schneider, Leipzig 1873].

[168] There is no manuscript error. The text is definitely γλαυκοί.

[169] Athenaeus: *loc.cit.* supra.

[170] D'Arcy Thompson: *Ephialtes scops.*

[171] Grzimek: 8.404. It is worth recording that the bird's eyes are yellow, yet another argument against applying γλαυκός to them. See also F. O. Morris: *A History of British Birds,* 6 vols. 3rd edition (London 1891), 1.159, with an illustration opposite p. 157. The *Scops* is common at both Olympia and Epidaurus. See N. Monk-Jones: "Birds in Greece," *Review of the Society for Hellenic Travel* 2 (1962), 48.

Callistratus

[172] "γλαυκόν τι σέλας ἐκ τῶν ὀμμάτων μαρμαίρουσα"

[173] Philostratus Junior: *Imagines,* proem 3. See also my discussion of Adamantius: 2.36a.

[174] "The wax beguiled the senses... the wax seemed to be tossed by the wind."

[175] Unusual to us, but not to the ancients among whom encaustic painting was very popular. See Pliny's description of the process, *N.H.* 35.41 (149), and a

detailed modern account, A. P. Laurie: *The Materials of the Painter's Craft in Europe and Egypt,* (Edinburgh 1910), 49-62. Laurie described experiments to reproduce encaustic painting, and one of his colour plates (opposite p. 62) illustrates a panel executed according to a receipt in Pliny. Light blue-grey was used for the sky and the distant sea, light blue-green for the sea in the foreground, but these are modern interpretations of the scene and do not necessarily represent the ancient point of view.

Cleitarchus

[176] For a discussion of this point, see E. Badian: "The date of Clitarchus," *PACA* 8 (1965), 5-11.

[177] For identification with the Manâl, see D'Arcy Thompson: *Greek Birds* s.v. κατρεύς. Cf. W. Beebe: *A Monograph of the Pheasants* 4 vols. (London 1918-22), 1.113 and plate XIV which illustrates one obvious difference between the two birds. The Catreus had bright red or orange legs, whereas those of the Manâl are a dusky to yellowish green. See also H. Whistler: *Popular Handbook of Indian Birds,* 4th edition revised and enlarged by N. B. Kinnear, (London 1949), 418-19. The Chir pheasant is nothing like Cleitarchus's bird. See S. Ali and S. D. Ripley: *Handbook of the Birds of India and Pakistan,* Vol.2 (1969), 116-18 and plate 22, fig. 5.

[178] Nonnos: *Dionysiaca* 26.206 sq. Beebe: *op.cit.* 1.117-18.

[179] "[The Chir Pheasant] is an extreme skulker... lies very close and almost impossible to flush without a dog until almost trodden on," Ali-Ripley: 2.117.

[180] *Pet Birds of Bengal,* (Calcutta and Simla 1923), Vol. 1.188. This is the *Myiophonus caeruleus temminckii.* See also Ali-Ripley: 9.79-82.

[181] "Both the male and the female begin to sing a duet early at dawn, when it is still dark... continuing till daylight appears," Law: *op.cit.* 192. Cf. Byzantios: "Κατρεύς, ὁ ἕως, εἶδ' πτηνοῦ (παγῶνι) τῆς 'Ινδίας," *Lexicon,* (Athens 1852), s.v.

[182] I should note also the Malabar Whistling Thrush (*Myiophonus horsfieldii*), local name *Kastūro,* whose song is reckoned by Ali and Ripley to be superior to that of the Himalayan Whistling Thrush, *op.cit.* 9.78. It, too, is an inhabitant of the Himalayas.

Cornutus

[183] For details, see Pauly-Wissowa: Supplement 5. 995-1005, and R. Reppe: *De L. Annaeo Cornuto,* (Leipzig 1906), 4-16.

[184] Cf. Adamantius 2.36a.

[185] See the discussion of γλαύξ — γλαυκός, supra, 32-3.

[186] Cf. Nonnos: *Dionysiaca* 3.98.

[187] According to Strabo, birds flying over the lake were killed by the noxious vapours which rose from it, (5.4.5).

[188] Thus A. Rehder: *Manual of Cultivated Trees and Shrubs,* 2nd ed. (New York 1956), 905. H. Gilbert-Carter: *Glossary of the British Flora,* 3rd ed. (Cambridge 1964), s.v. H. I. Featherly: *Taxonomic Terminology of the Higher Plants,* (Iowa 1954), s.v. The last two authors give, as examples, the bloom on a plum or a cabbage leaf. Polunin describes olive leaves as "greyish-green... glaucous-white underneath," *Flowers of Europe,* s.v. which agrees with the *Oxford Dictionary:* "a dull ashy green with silvery sheen," s.v. Olive Bc. Pliny said that the leaves are whiter on top (*superne candidiora*): *N.H.* 16.36 (88). Cf. Dioscorides on the γλαύξ, *De Materia Medica:* 4.138 and Lawrence Durrell: "You wake one morning in the late autumn and notice that the tone of everything has changed; the sky shines more deeply pearl, and the sun rises like a ball of blood... The sea has become leaden and slug-

gish, and the olives a deep platinum grey," *Prospero's Cell,* (London 1945), 45. There is an interesting example of glaucescence in a late fourth or early fifth century herbalist's manuscript, the *Johnson Papyrus,* where one of the coloured pictures shows a cabbage-like plant with heavy leaves of bluish grey. See C. Singer: 'The Herbal in Antiquity,' *JHS* 47 (1927), 31-2, 45, and plate 1.

[189] Dr. E. C. Bate-Smith has been kind enough to show me one of his own water-colours of a Cretan olive-grove, in which he has employed just this colouring. The effect, especially when seen from a distance, is startling and catches the eye more insistently than the pale green of the plant's flowers, which is partly why I am sure that not they but the leaves are in question here. Cf. Manilius: *Astronomica* 5.260 (caerulea), Ovid: *Ars Amatoria* 2.518, Lucretius: 5.1373-4.

[190] *G&R* n.s.1 (1954), 36-41.

[191] I do not agree with his suggestion that γλαυκιόων, used of wild animals, means that they charge blindly. He is right in saying that if the verb is connected with γλαύκωμα, any notion of brilliance is out of the question because cataract turns the eye dull. Cf. Hesychius: γλαυκίζειν = ἀμβλυωπεῖν. This is in direct contradiction of mythographers, such as M. C. Astour who rejects a colour-meaning for the term. 'Athena herself was originally imagined as an owl — it is in this sense that her surname glaukopis has to be understood: it means precisely 'owl-eyed', or 'owl-faced', or 'owl-shaped', and not 'grey-eyed', as usually translated, and she inherited in from the East, where there were many bird-goddesses. The healer-heroes of Greek myths carrying the names of *Glaukos* also derive from the 'owl', and not from the 'grey sea';' *Hellenosemitica,* (Leiden 1965), 249. S. Fogelmark also rejects the notion of colour. In Pindar, he says, γλαυκός and its compounds probably do not refer to colour so much as "cold and glittering". Γλαυκῶπις Athene means her eyes are gleaming, *Studies In Pindar,* 33-34. I find I cannot support either of these assertions. For a detailed discussion, see supra Appendix D.

[192] M. Minnaert: *Light and Colour in the Open Air,* 238-9. Cf. "A distant wood forms an excellent background against which to observe the atmosphere's scattering, and the more distant it is the hazier and bluer it seems," *Ibid.* 239.

[193] I am told by Dr. D. W. Dewhirst that he remembers once in the early nineteen fifties seeing the Moon turned almost turquoise because extensive forest fires in Canada had released oil droplets upon the prevailing Westerlies, and these caused the phenomenon of a blue moon.

[194] Augustine: *De Civitate Dei* 7.16. Diogenes of Babylon: *De Minerva* = Diels, *Dox. Graec.* 549. Aristotle, apud Arnobium: *Adversus Gentes* 3.31. Plutarch: *Moralia* (De facie quae in orbe lunae apparet 5), 922a. Cf. *Ibid.* 938b. Sallust the philosopher: *De Deis et Mundo* 6. Macrobius: *Saturae* 1.37. Eustathius 40.30, 123.17, 124.13. See also W. Spoerri: *Späthellenistische Berichte über Welt, Kultur und Götter,* (Basel 1959), 182-4.

[195] See Dioscorides: *De Materia Medica* 4.20 which includes ξιφίον and μαχαιρίωνα among the various names for the flower. The Roman name echoes the image. Cf. Pliny: *N.H.* 25.89 (138). Theophrastus: *H.P.* 7.13.1. See also Polunin: *Flowers of Europe,* 1695 and plate 176.

[196] *De Materia Medica* 4.136.

[197] See Polunin: *Flowers of Europe,* 1402 and plate 146. This is a more likely definition here than LSJM's *Xanthium strumarium* whose leaves are not in the least sword-like.

[198] *De Materia Medica* 4.141. Polunin: *Flowers of Europe,* 1337. I think one is entitled to delve a little into the obscurities of flower-lore, since Cornutus himself seems to have had difficulty in specifying exactly which flower he meant—"those called φασγάνια," "the ones used to crown Pluto." These phrases suggest he was not thinking of the most common form of φασγάνιον.

[199] As in Homer and Hesiod. See LSJM s.v. ἀήρ for references.

[200] *Op.cit.* 37, note 4.

[201] "The lion has a very expressive face... When he is really angry, he puts back his ears; his eyes, otherwise so serene, begin to glitter," C. A. W. Guggisberg: *Simba, the Life of the Lion,* (London 1961), 63.

[202] F. Vian: "la prunelle verdâtre," Budé ed. (1966).

[203] Cf. Galen: *De usu partium corporis humani* 10.6 = K3.786, and see Vian's note ad locum. Cf. S. E. Bassett: "The Laocöon Episode in Quintus Smyrnaeus," *AJPh* 46 (1925), 252. He called the disease simply 'ophthalmia'.

[204] *The Leopard,* (London 1967), 31. Grzimek: "During the day the boid [snake's] pupils constrict and form vertical slits, while at dusk and at night they widen and look like cats' eyes," 6.365.

[205] See also Scholiast H on *Odyssey* 1.44. Snakes do use their nictitating membrane from time to time and this could give their eyes a glaucous appearance, but I think the regular linking of cats and snakes is better explained by the reptilian phenomenon described by Turnbull-Kemp.

[206] See G. F. H. Smith: *Gemstones,* 14th ed., 314-15.

[207] Cf. Epiphanius: *De Gemmis* 11.

[208] J. Maillon: "ses yeux sont bleus," Budé ed. 1938. On Alexander's lion look, see pseudo-Callisthenes: *Historia Alexandri Magni* 1.13 (λεοντοκόμου). He said also that Alexander's teeth, ('little pegs') were like those of a wild lion. Cf. Plutarch: *Moralia* (De Alexandri Magni Fortuna et Virtute 2.2), 335b, (λεοντῶδες). Cf. Lycophron: *Alexandra* 1441. See also M. Bieber: "The portraits of Alexander," *G&R* n.s. 12 (1965), plate 8, fig. 16, and plate 9, fig. 18. On Alexander's identification with Achilles, see R. Lane Fox: *Alexander the Great,* 59-62, 64-7.

[209] *Op.cit.* 31. He goes on to give examples.

[210] *Iliad* 1.197; 23.141.

[211] For examples, see the entries in LSJM s.v. λέων. We know from the famous lion-hunt mosaic in the palace at Pella that the animal could afford sport as late as the fourth century B.C. G. B. Schaller: "Lions were common in Greece in the fifth century B.C., rare by 300, and by 100 A.D. they were gone," *The Serengeti Lion,* (Chicago 1972), 5. There is a mosaic showing a lion with a light blue ring round its irides, A. de Franciscis: *Antichi Mosaici al Museo di Napoli,* (Cava dei Tirreni 1962), plate 10. Another shows the Nemean lion asleep. His eyelids are bluish, B. Pace: *I Mosaici di Piazza Armerina,* (Roma 1955), plate VI. Another portrays the creature with touches of grey in its eye, which may be meant to convey glare or brilliance, R. P. Hinks: *Catalogue of the Greek, Etruscan and Roman Paintings in the British Museum,* (London 1933), 126. Cf. the head of a tiger, showing light blue irides, C. M. Havelock: *Hellenistic Art,* (London 1971), plate VIII. As a matter of interest, one may note that Shakespeare used 'wall-eyed' in the sense of *having glaring eyes* in *King John* 4.3.49, with which one may compare Sarah Bernhardt's description of William Jarrett, her impresario. "His eyes were blue. They were so pale that, when they blazed in anger, he seemed blind," *Ma Double Vie,* (London 1907), 336.

[212] One of the most recent discussions of γλαυκιόων denies altogether that the word was derived from γλαυκός as a colour term, but consideration of it is based upon too limited an amount of evidence to prove its point, E. Handschur: *Die Farb- und Glanzwörter bei Homer und Hesiod* etc., 69-70. For a discussion of the psychological implications of γλαυκιόων, see supra 140-1.

Ctesias

[213] Ctesias was quoted by Pliny: *N.H.* 8.30 (75). Cf. Aristotle: *H.A.* 2.1 (501a.25 sq.) and Philostratus: *V.A.* 3.45. See also Manuel Philes: *De Animalium Proprietate* 39.

[214] J. W. McCrindle, however, was not happy about the account. "Just as foreign [as griffins] to the Indians," he said, "is the *Martikhōras* whose name is correctly explained as the man-eater, but in old Iranian, because *Martijaqara* has this meaning, but the second part is foreign to the Indian language. If Ktesias has reported he had seen such an animal with the Persian King to whom it had been presented by the Indian King, he cannot in this instance be acquitted of mendacity," *Ancient India as described by Ktesias the Knidian,* (Calcutta 1882), 77. This opinion is shared by Lucian: *Vera Historia* 1.3. If we can trust an eighteenth century traveller, tigers could still be found on Mount Ararat even in his day. "Les Tigres que nous aperceûmes ne laisserent pas de nous faire peur, quoiqu' ils fussent à plus de 200 pas de nous, et qu'on nous assûrât qu'ils ne venoient pas ordinairement insulter les passans; ils cherchoient à boire, et n'avoient sans doute pas faim ce jour-là... On en tue quelque fois à coups de fusil; mais la principale chasse se fait avec des traquenards ou piéges, par le moyen desquels on prend les jeunes Tigres que l'on apprivoise, et que l'on mene promener ensuite dans les principales villes de Perse," J. P. Tournefort: *Relation d'un voyage du Levant,* 2 vols. (Paris 1717), 2.358. See also G. J. M. Bartelink: "Het fabeldier martichoras of mantichora," *Hermeneus* 43 (1972), 169, 174, 225. P. Louis: "Les animaux fabuleux chez Aristote," *REG* 80 (1967), 244-5.

[215] On which see my discussion sub CORNUTUS. The famous mosaic of Dionysus riding upon a panther shows the animal with mid-blue eyes, but convention played a part in the choice of colours for both paintings and mosaics and one cannot be sure that realism was the first concern of the artist. See Charbonneaux-Martin-Villard: *Hellenistic Art 330-50 B.C.,* fig. 192 (colour). Another mosaic shows a tigress attacking a calf. Both animals have light irides, but this could as well be amber as any other shade. See R. B. Bendenelli: *Rome, the late Empire: Roman Art A.D. 200-400,* (London 1971), fig. 90 (colour). Once again, Arabic translated γλαυκός as *dark blue.* See the excerpts from Aristotle's *H.A.* attributed to Mūsā b. 'Ubaid Allāh al-Qurṭubī al-Isrā'īlī, (ed. J. N. Mattock, Cambridge 1966), 2.8.

CYRANIDES

[216] θαλάσσιος. Normally this would mean 'salt-water' and so distinguish the fish as a sea rather than a river creature. The adjective can, however, refer to colour, (see supra, 18), and since the γλαῦχος seems to have been known particularly for its colour—hence its name—I have preferred to translate θαλάσσιος by the rather less unusual meaning. For a discussion of the fish, see Aelian: 1.16.

[217] R has λευχοῦ. It is possible that the colour referred to is grey, or steel-grey. In his book on the background of Murasaki's novel, *The Tale of Genji,* Ivan Morris noted that steel-grey horses were called 'blue', but when white horses replaced them, the adjective remained the same, *The World of the Shining Prince,* (Oxford 1964), 157, note 1. By analogy, then, both γλαυχοῦ and λευχοῦ could be correct. Cf. Pollux: 5.12 (68), and note ad locum. Note, too, that a 'blue roan' is actually white mixed with black. According to C. P. Groves, the 'blue' horse was a mousy-grey tarpan, *Horses, Asses, and Zebras in the Wild,* 68. Cf. the horse made of blue marble, found at Aphrodisias, M. T. Mellink: 'Archaeology in Asia Minor,' *AJA* 75 (1971), 178 and plate 41, fig. 21. What may be an English usage similar to the Greek can be found in A. Fleming's rendering (with libellous interpolations) of J. Caius: *De Canibus Britannicis,* published in 1576. On page 15 he translated thus. "There is also at this day among us a newe kind of dogge brought out of Fraunce... And they be speckled all over with white and black, which mingled colours incline to a marble blewe, which bewtifyeth their skinnes and affordeth a saemely show of comlynesse." Fleming's 'marble blue' is Caius's, "sed ex toto in albo obfuscatum

maculose," which was presumably meant to convey an idea of grey conjoined with white. See also S. Bökönyi: *History of Domestic Mammals in Central and Eastern Europe*. 257-67.

[218] μετὰ μάγνητος λίθου. The description given in Theophrastus: *De Lapidibus* 41 points to foliated talc. See the edition by D. E. Eichholz, (Oxford 1965), 115. Cf. Damigeron, apud Aetium 2.25.

[219] There were other recipes for the same purpose. See, for example, Dioscorides: *De Materia Medica* 1.125.3. Galen: *De remediis parabilibus* 2.4.13 = K14.414. An Anglo-Saxon recipe laid emphasis upon colour in its effort to cure gummed eyes. "If the eyes are stopped up: Take crab's gall and 'white-maering', wild lettuce and salmon's gall. Put them together. Drip into the eyes through a flax-blue cloth," *Lacnunga, a magico-medical commonplace book,* ed. J. H. G. Grattan and C. Singer, (Oxford 1952), VIIa (p. 99).

Demosthenes Ophthalmicus

[220] See further Pauly-Wissowa 5.189-90.

[221] Cf. Aristotle: *G.A.* 5.1 (780a.15-18).

[222] Cf. Benvenutus Grassus: *De oculis, eorumque aegritudinibus et curis,* (Ferrara 1474).

[223] A simple but very useful handbook on the subject is A. Sorsby: *A Short History of Ophthalmology,* (London 1933). This contains diagrams showing the composition of the eye according to Hippocrates, Aristotle, Celsus, and Galen, all of which are invaluable aids to understanding difficult and sometimes obscure texts.

Diodorus Siculus

[224] Cf. Cornutus: 20a.

[225] See Agatharcides: *De Mari Erythraeo* 51 on which this passage is based, and my comment ad locum. In his translation, (Paris 1865), F. Hoefer correctly noted that *glaucoma* here probably refers to cataract.

[226] See A. J. Evans: *Early Nilotic, Libyan and Egyptian relations with Minoan Crete,* (London 1925), 22.

[227] Words like *Āthen,* referring to the disk of the Sun, are out of the question as etymological sources. There is a short, but not very helpful, note on this passage in A. Burton: *Diodorus Siculus, Book I, A Commentary,* (Leiden 1972), 69 sq. On Athene as air, see supra references sub Cornutus: 20a.

[228] Apud Strabo: 3.1.5.

[229] Dioscorides: *De Materia Medica* 1.100.2.

[230] Polybius: 31.23.8. Philodemus: *De Ira* fr. 1.14 [Wilke]. Cf. Cicero: *Ad Atticum* 12.4.1. [Oxford text]. Pseudo-Aristotle: *Physiognomica* 6 (812b.10) = ἔνωχρος, from fear.

[231] Philostratus: *Imagines* 1.22.2.

[232] Diodorus Siculus: 3.39.5.

[233] *De Coloribus* 6. (797b.13 sq.)

[234] See also the remarks of J. Humbert: *Syntaxe grecque,* 3rd ed., 331.2.

Dioscorides

[235] The translation of P. A. Matthiolo rendered this as "gli occhi, che si cambiano in colore glauco," (Venice 1544), changed in the 1558 edition (now in Latin) to, "ad oculorum glaucitates," a less sensitive translation.

[236] Cf. Galen: *De remediis parabilibus* 2.4.13 = K14.414. *Cyranides* 4.3.12 (p. 106).

[237] The Latin codex of Dioscorides has "sucum dimittens velut viride".
[238] 2.143. Cf. Goodyer: "glaucum", (2.184).
[239] Edited by C. E. Dubler, Vol. 2 (Barcelona 1957). The Arabic reference is 2.179.
[240] Goodyer: 2.211. Laguna: 2.171. Polunin: *Flowers of Europe,* no. 274.
[241] The *Batrachion* was described by Dioscorides thus. "Some people call it wild celery. There are several kinds. It has leaves like those of a coriander but broader, dull white (ὑπόλευκα) and shiny. The flower is quince-yellow (μήλινον). In some species it is πορφυροῦν. The stem is not thick. Its root is thin and white (λευκήν)," (2.175). This sounds rather like the celery-leaved buttercup (*Ranunculus sceleratus*). Democritus said the flower was golden, *Geoponica* 2.6.30, but some montane species of this do have reddish flowers. Pliny listed four kinds but none with red flowers, *N.H.* 25.109 (172). A. Carnoy suggested that this plant was common water crowfoot (*Ranunculus aquatilis*) on the grounds that βατράχιον, 'frog-like', implies that the plant grew in water, *Dictionnaire étymologique des noms grecs des plantes,* (Louvain 1959), s.v. Unfortunately, this crowfoot's leaves look nothing like those of celery, and upon that point of comparison Dioscorides and Pliny are in agreement.
[242] *N.H.* 25.59 (105). For an excellent coloured illustration, see J. Boswell: *English Botany,* Vol. 6 (London 1880), no. 1018. Carnoy, *op.cit.*, suggested procumbent vervain (*Verbena supina*).
[243] Cf. Matthiolo: "di colore alquanto ceruleo," (1544); "colore aliquatenus caesio," (1558). Goodyer: "drawing to an azure," (4.61), Laguna: "Verbena, y color turquesado," (4.61). One of the other possible names for the plant, given by Dioscorides, σιδηρῖτις, suggests a pale blue-grey colour.

Dorotheus

[244] Apud Hephaestionem: *Apotelesmatica* 3.45.9. This is the prose résumé which is the form in which the work has survived.
[245] The Arabic version translated this as *azraq.*
[246] Cf. pseudo-Pythagoras, apud *CCAG:* 11^2137^6.
[247] The Arabic is *ashhal.*

Epiphanius

[248] Born at Bezanduca near Eleutheropolis in Palestine. In 367 he became Bishop of Salamis in Cyprus. For further details, see Pauly-Wissowa: 6.193-4. The pamphlet on the twelve stones of Aaron's breastplate has come down to us in different versions, the Greek Περὶ λίθων being an abbreviation of a much longer work. It is a description of, and commentary on, the Septuagint version of *Exodus* 28.17-20. We have Jerome's assurance that Epiphanius himself had given him a copy of the work, and indeed he quoted from it in his commentary on *Isaiah,* (15.54 = Migne, *P.L*: 24.525). This original version, however, has been lost, and what we have are two parallel epitomes of the section which describes the stones. There are also versions in Latin, Georgian, Syriac, Coptic, and Armenian. See H. de Vries: *Epiphanius de Gemmis,* (London 1934). The Greek text is to be found in Migne, *P.G*: 43.294-302. The Latin text follows it. See also P. G. Maxwell-Stuart: "Epiphanius on Gemstones", *Journal of Gemmology* 15 (1977), 435-44.
[249] Cf. pseudo-Astrampsychus 3 (p. 191, Ruelle).
[250] See Caley-Richards: *Theophrastus on Stones,* 107.
[251] See D. E. Eichholz: *Theophrastus de lapidibus,* 107. Cf. Caley-Richards, 100.
[252] *N.H.* 37.41 (125). See D. Wyckoff's comment in her edition of Albertus Magnus: *Book of Minerals* 2.2.8, (Oxford 1967), 97-8.

[253] See Polunin: *Flowers of Europe,* 1643 and plate 171. Cf. Isidore: "Iacinthus ex nominis sui flore vocatus... caeruleum colorem habens," *Etymologiarum Libri* 16.9.3. This may refer to *Hyacinthus amethystinus* whose flowers are a strikingly light blue. Cf. Columella: "caeruleos hyacinthos," 10.100. In their Loeb edition (1955), Forster-Heffner translated this as 'blue corn-flags'. Eicholz's note in his Loeb edition of Pliny *loc.cit.* (1962), says that *hyacinthus* cannot mean 'hyacinth', and he too suggested the corn-flag, *Gladiolus segetum,* as a translation. But I think this unlikely to be accurate, as the corn-flag has rosy-purple flowers and Pliny was quite clear that the flower he was discussing was blue. See Polunin: *Flowers of Europe,* 1695 and plate 176. [C. Garlick's suggestion of Fritillary cannot apply to this plant, "What was the Greek hyacinth?" *CR* 35 (1921), 146-7].

Galen

[254] Cf. Aristotle: *G.A.* 5.1 (780a.1).

[255] N. Culpeper's comment on this passage is worth recording. "The black spot in the midst of the Eye is the Christalin humor, in which the Visive vertue resides, that round about it, being of many colours, is called the Iris, or, in plain English, the Rain bow, this indeed contains in it all colours, for if we had not all colours within our Eye, we could not discern them without, and that's the Reason, shutting our Eyes a little, makes us see the better because it reflects the Beams back to the Iris, where they are recruited, there the clearer you perceive the Iris to be, the stronger the Sight is, you shall never find this fail. I was once to satisfie my mind, where a chirurgion dissected the Eye of a Sheep and the Eye of a Cat, because we were willing to see what Reason might be given why the one could see better in the night than the other; the Reasons we found were these,
1. The Christaline Humor of the Cats Eye was far cleerer.
2. The Iris was much cleerer.
3. The Optick Nerve also in the Cat (the difference between the bigness of the Beasts considered) was much bigger.
4. The Optick Nerve of the cat had two Originals at a great distance the one from the other, the one from the cerebrum or brain, the other from the cerebellum or hinder part of the Brain."
Ars Medica, (London 1671), 28-9. Culpeper translated γλαυκός as *grey.*

[256] This was translated by Linacre thus: "cum sive humoris vincentis, sive caloris, sive etiam amborum, cesios oculos indicium oportet," (London 1521), 89.

[257] Cf. Aristotle: *G.A.* 5.1 (780a.18). This remained medical opinion for some considerable time. Cf. Hofman's commentary, "sedes igitur morbi est in humore crystallino, causa morbi in humore vitreo," (Paris 1625), 230.

[258] Cf. *C.C.A.G:* $8^3.157^{18}$.

[259] Cf. Aetius: 7.43. Perhaps the κυανοῦν flower of henbane suggested the use of sympathetic magic. The effect is obtained, once again, from the action of atropine.

[260] The word γλαύκουρις does not appear elsewhere and is not identifiable. Cf. the γλαυκίσκον of Hegemander, fr. 35.

[261] "Perspicit ubi nigra, vel caesia, vel flava apparet," J. Guinterius, (Paris 1528).

[262] Adamantius thought that this made them slow-witted, (2.31), with which opinion a writer in the *Corpus Hermeticum* seems to have agreed. "The North, with the cold that belongs to it by nature, freezes the mind as well as the bodies of the men who live beneath the Northern sky," *Stobaei Excerpta* 24.14.

[263] See J. Kollesch: *Untersuchungen zu den pseudogalenischen Definitiones Medicae,* (Berlin 1973).

[264] "Caesium," J. Guinterius.

[265] See supra, my comment on Antiochus the astrologer, and cf. *P. Ross-Georg.* 1.20 (col.2), 55-63.

[266] See J. Crofton & A. Douglas: *Respiratory Diseases,* 2nd ed. (Oxford 1975), 337.

[267] Mrs. Beeton recorded such mishaps and suggested a cure for them, *The Book of Household Management,* (London 1861), 1085. Note, however, the record of bile in splenetic jaundice, possibly another case of indicanuria, Aretaeus: 3.15.8. Cf. *Ibid.* 4.9.7. One should not be misled by Democritus apud Theophrastum: *De Sensu* 77 in which ἴσατις is said to be composed of a great deal of μέλας with a little χλωρός. The reference is clearly to the green of the leaf, not the dye obtained from it. See the description of Dioscorides: *De Materia Medica* 2.184.

[268] See Duke-Elder: *System of Ophthalmology* 7.542-6.

Gregory of Nyssa

[269] Migne, *P.G.* 46.140c.

Heliodorus

[270] These dates are rather dubious. See Pauly-Wissowa: 8.20-8.

[271] On γλαυκιῶν, see supra 42-5. One manuscript (T) has γλαυκόν instead.

Hephaestion

[272] Repeated at *Epitoma* 4.21.22 and *C.C.A.G.* $8^2.58^{32}$. Notice that such people are also 'lion-faced', (λεοντοπροσώπας). Cf. *Epitoma* 2.2.25 (58).

[273] *Epitoma* 2.2.25 (58) calls them ὑπογλαύκους. In *Epitoma* 4.21.25, however, they are again γλαυκούς. Cf. *C.C.A.G.* $8^2.59^4$.

[274] *Epitoma* 4.21.31 calls them γλαυκοφθάλμους. So does *C.C.A.G.* $8^2.59^{23}$.

[275] Or 'fierce', (γοργούς), but cf. Heliodorus: *Aethiopica* 7.10.4.

Herodotus

[276] The best summary of the various suggestions is by R. W. Macan: *Herodotus, the Fourth, Fifth and Sixth Books,* Vol. 1 (London 1895), note ad locum. Cf. W. W. How and J. Wells: *A Commentary on Herodotus, Books I-IV,* (Oxford 1912) and B. A. van Groningen: *Herodotus' Historien,* (Leiden 1950).

[277] *Enneads* 4.4.19. Cf. the parallel usage in Plutarch, "The products of the olive and chestnut are called 'olives' and 'chestnuts', the same names as the trees that bear them," *Moralia* (Quomodo adolescens poetas audire debeat 6), 24d.

[278] *Daphnis and Chloe* 2.32.

[279] There are many examples of γλαυκός being used by itself with obvious reference to the eyes. See sub Galen, Anatolius, Philostratus, etc. See also my discussion sub Adamantius: 2.31 and the Addendum. On the Budini, see further Pauly-Wissowa: 3.989-91 and E. H. Minns: "The description of the Budini themselves tallies with that of the Permiaks, grey-eyed and reddish-haired," *Scythians and Greeks,* (Cambridge 1913), 105. For their geographical position, see G. F. Hudson: *Europe and China,* (London 1931), 31-4. Martial's "caeruleis Britannis," (11.53), is not an analogous passage. Herodotus's combination of adjectives is a regular one for eyes and hair. Martial's single adjective expects readers automatically to think of the Briton's painted bodies. Cf. "Omnes vero se Britanni vitro inficiunt, quod caeruleum efficit colorem," Caesar: *B.G.* 5.14. Tacitus pointed out that the races of Britain were different and had different appearances, (*Agricola* 11), so *caerulei* in Martial is unlikely to refer to the eyes of such a mixed

group of people. Both Greek and Roman terminology for Celts and Germans was oversimplified. See further C. M. Wells: "The Ethnography of the Celts and of the Algonkian-Iroquoian Tribes: a comparison of two historical traditions," *Polis and Imperium*, a Festschrift ed. J. A. S. Evans, (Toronto 1974), 265-75.

Himerius

[280] "Underwent a change of colour," as in the process of extracting dye by boiling, during which the surface of the water changes colour a number of times. See Chantraine apud I. Meyerson: *Problèmes de Couleur*, 326, and notice the sense *heave, surge, swell*, given by LSJM. G. Wernsdorf (1790) sought to explain the verb as *nitescebat*, (though he translated it as *rutilabat*), because as it neared the shore the wave began to foam and grow dark before changing into a light blue colour. His general picture is right—cf. Aristotle: *G.A.* 5.1 (779b.31)—but his translations do not convey his point.

[281] Εἰς γλαυκὸν ἄνθος. Wernsdorf translated this as *caeruleum colorem*. Ἄνθος is rather more than *color*. It implies a surface brilliance and a 'bloom', as in glaucescence. See LSJM s.v.

[282] Wernsdorf: *caesiis oculis*.

[283] *Ulva lactuca*. See *Encyclopaedia Britannica* 15th ed. s.v. and its coloured-photograph.

[284] Wernsdorf: *micantes*. His note added, "non caerulei sed lucidi et corusci," in support of which he cited Theocritus 16.5 which describes Dawn as γλαυκός and could as well be *blue* as *bright*; and Scholiast to Apollonius Rhodius: *Argonautica* 1.1281, where we find the misleading information which has caused lexicographers so much trouble, namely that γλαυκός and χαροπός are synonymous, both meaning *bright*, and that γλαυκός comes from γλαύσσειν. For my arguments against this, see supra 143-5.

[285] Wernsdorf: *caeruleis*.

[286] *Lexique des termes de botanique en latin*, (Paris 1956), s.v.

[287] *N.H.* 15.39 (131).

[288] See Polunin: *Flowers of Europe*, no. 759.

Hippiatrica Cantabrigiensia

[289] Experiments by M. Millodot have indeed suggested that light-coloured corneas are more sensitive than dark, *Nature* 255 (May 8th, 1975), 150-2.

Hippocratic Corpus

[290] Cf. *De morbo sacro* 2 = Littré 6.364 and Aristotle: *H.A.* 7.6 (585b.29-586a.12). This was questioned by Cardanus in his *Commentary*, (Basel 1570), 163. According to an Egyptian source, heterochromatic women could not conceive, *Berlin Papyrus* 2.1-2, so prognostication of pregnancy and the characteristics of the child to be born are very much older than Hippocrates. For a modern view, see Waardenberg-Franceschetti-Klein: *Genetics and Ophthalmology*, 695-700, and Ashley Montagu: *Human Heredity* 2nd ed., 245-6. A seventeenth century translator, A. Dacier, used the unusual adjective *pers* of the eye-colour, *Les oeuvres d'Hippocrate*, 2 vols. (Paris 1697), 2.452. The Arabic translation rendered γλαυκός by *ashhal* = bluish-black, *Kitāb Buqrāṭ fi'l-Amrāḍ al-Bilādiyya*, ed. J. N. Mattock and M. C. Lyons, (Cambridge 1969), 129.

Hippolytus

[291] These extracts may also be found, attributed to Origen, in Migne, *P.G.* 16^3.3083-6.

Iamblichus

[292] See further J. M. Dillon: *Iamblichi Chalcidensis in Platonis dialogos commentariorum fragmenta,* (Leiden 1973), 3-25.

[293] Cf. Galen: *In Hippocratis de medici officina, Commentarius* 2.2 = K18².728.

Inscriptiones Graecae

[294] Also *Ibid.* 465, 506.

[295] By Koehler. See the notes ad locum by C. Friedrich (ed.)

[296] Nor am I taken by P. Chantraine's classing them as minerals, since he offers no evidence to support the idea, *Dictionnaire étymologique de la langue grecque* s.v. γλαυκός.

[297] Cf. Plutarch: *Moralia* (De Pythiae Oraculis 4), 396c and my comments ad locum.

Josephus

[298] This is part of a lengthy summary of Aristeas: *Epistula ad Philocratem* 316. Cf. also Plutarch: *Timoleon* 37.6, and note my remarks on the medical nature of such afflictions, supra 26-7.

Lucian

[299] *De mercede conductis potentium familiaribus* 33.

[300] *Peregrinus* 39. These points are made by G. Anderson: *Lucian, theme and variation in the second Sophistic,* (Leiden 1976), 52-3.

[301] For details, see Anderson: *op.cit.* 9.21.

[302] M. D. Mcleod's Loeb translation (1961), "they go very well with her helmet," is misleading. Κοσμεῖ is both active and transitive, and a translation should try to reflect this. Harmon's version is better. "To be sure, she has green eyes, but the helmet makes even that a mark of beauty," *Dearum Judicium,* (Loeb ed. 1921), 399 note 3. His references to Lucretius: 4.1161 and to the Latin *caesius,* however, are little to the point.

[303] Dioscorides: *De Materia Medica* 1.125.3. Galen: *De remediis parabilibus* 2.4.13 = K14.414. Cyranides: 4.3.12 (p. 106).

[304] "Quid item tanta ordinandi crinis operositas ad salutem subministret? Quid crinibus vestris quiescere non licet, modo substrictis, modo relaxatis, modo suscitatis, modo elisis? Aliae gestiunt in cincinnos coerere, aliae, ut vagi et volucres elabuntur, non bona simplicitate. Affligitis praeterea nescio quas enormitates sutilium atque textilium capillamentorum, nunc in galeri modum quasi vaginam capitis et operculum verticis, nunc in cervicum retro suggestum," *De cultu feminarum* 2.7.1 = Migne, *P.L.* 1.1323.

[305] Conscious fear of the evil eye or subconscious fear of cataracts may well have played a part in making γλαυκός unfashionable from time to time, but outside Lucian γλαυκῶπις was not an adjective which caused frissons of distaste and, indeed, pseudo-Lucian made γλαυκῶπις a positive feature of Athene's beauty. An anonymous Byzantine author, too, found the colour a recommendation. "Γυνὴ γλαυκοὺς ἔχουσα τοὺς ὀφθαλμοὺς εὐγνώμων ἐστί," *Physiognomica* 26 [ed. Forster II].

Methodius Olympius

[306] The great lawgiver to whom Methodius was referring was Moses, and the locus is *Leviticus* 13 which deals with various types of skin disease.

[307] R. D. G. P. Simons (ed.): *Handbook of Tropical Dermatology and Medical Mycology,* 2nd ed. 2 vols. (Amsterdam 1952-53), 1.464. R. G. Cochrane: "The word translated leprosy in Biblical writings should be rendered defiled or cursed [as] it had no bearing on the disease we know as leprosy today," *Leprosy in Theory and Practice,* 2nd ed. (Bristol 1964), 2.

[308] See F. D. Hart (ed.): *French's Index of Differential Diagnosis,* 10th ed. (Bristol 1973), 634. On 'leprosy' in the Bible, see J. Preuss: *Biblisch-Talmudische Medizin,* (Berlin 1923), 369-90.

[309] Preuss: *loc.cit.* gives many references. See also D. Bothwell and A. T. Sandison: *Diseases in Antiquity,* (Illinois 1967), 206-7, 216-17, 244-5, 304-5. Avicenna distinguished two kinds of leprosy, *The Canon of Medicine,* (ed. Gruner, London 1930), 1.795 and see also R. Burton: *1001 Nights,* 6 vols. (London 1886), 3.370, note. Hippocrates: *Prorrhetic* 2.43 = Littré 9.74, Pollux: *Onomasticon* 4.193, Pliny: *N.H.* 24.33 (48). These authors used the word in the plural, thus indicating that they knew of several diseases to which it could be applied. See also E. Muir: *Manual of Leprosy,* (Edinburgh 1948), 90-4, which lists various diseases whose symptoms may sometimes resemble those of leprosy.

[310] Hart: *op.cit.* 677-8. Littré identified *lepra* as psoriasis ad Hippocratem: *De Morbis* 1.3 = Littré 6.144. Cf. perhaps Herodotus: 1.138.

[311] W. H. Jopling and R. R. M. Harman: 'Leprosy', *Textbook of Dermatology,* 2nd ed., edited Rook-Wilkinson-Ebling, 2 vols. (Oxford 1972), 2.1879. Simons: *op.cit.* 1.465.

[312] Simons: *loc.cit. supra.*

[313] Rook-Wilkinson-Ebling: *op.cit.* 1.683-5.

[314] See O. Canizares (ed.): *Clinical Tropical Dermatology,* (Oxford 1975), 112.

[315] Rook-Wilkinson-Ebling: 1.620-23.

[316] Private communication from Dr. J. Grant of the London School of Hygiene and Tropical Medicine. Cf. H. M. Stanley, "All this time there were about thirty naked Madis in the last stages of life; their former ebon black was changed to an ashy grey hue," *In Darkest Africa,* 2 vols. (London 1890), 1.453.

[317] For example, pseudo-Aristotle: *Physiognomica* 6 (812b. 4-5) and Adamantius: *Physiognomica* 1.8b and 2.36b.

[318] Two further points should be made. In *Leviticus* 13, the ξανθίζουσα and χλωρίζουσα *leprae* are formed on clothes, since *lepra* was a term also applied to what we should now call mould. Cf. Talmud: *Sanhedrin* 87b and 92a. It is easy to envisage a form of light-blue mould—that which invades an orange, for example—and it is possible that Methodius had some such picture in mind. He does say clearly, however, that all four types of *lepra* break out in the human body. Secondly, it is not very probable that γλαυκαῖνος can refer to some change in the eye as a concomitant of leprosy. Intra-ocular inflammation could cause the area round the iris to turn somewhat green—a description is given in *Papyrus Ebers* 110, (trans. B. Ebbell, London 1937, 127)—or anaesthetic leprosy could induce lagophthalmia which, augmented by anaesthesia of the cornea, would cause ulceration and so give a whitish look to the eye. But neither case really coincides with the usual appearance of γλαυκός nor with Methodius's picture of the *leprae* as eruptions from deep within the body. Decay of flesh is almost certainly what he had in mind.

Nilus Ancyranus

[319] = Migne, *P.G.* 79.165.

Papyrus Graecus Holmiensis

[320] Part of a recipe for dyeing purple with madder. The wool was tinted first with indigo in order to deepen the madder-red.

[321] M. Levey, "Comparatively poor in colouring matter, woad must have necessitated much repetition of operations to achieve a dark blue," *Chemistry and Chemical Technology in Ancient Mesopotamia,* (Amsterdam 1959), 105. Cf. J. B. Hurry: *The Woad Plant and its Dye,* (London 1930), 33.

[322] See F. S. Taylor: *A History of Industrial Chemistry,* (London 1957), 119. W. F. Leggett: *Ancient and Mediaeval Dyes,* (New York 1944), 31-41. C. Singer: *The Earliest Chemical Industry,* (London 1948), 14. It should be noted that the contents of the papyrus are probably older than the date of its composition. See also E. R. Caley: "The Stockholm Papyrus," *Journal of Chemical Education* 4 (1927), 979-1002.

Papyrus Leiden X

[323] See M. Berthelot: *Collection des anciens alchimistes grecs,* (Paris 1888), 19-70. Berthelot discussed the date on p. 22.

[324] See F. S. Taylor: *A History of Industrial Chemistry,* 114-115. R. J. Forbes: *Studies in Ancient Technology,* 2nd ed., 4.121.

[325] Cf. the process in *P. Holm.* 26.30 sq. See also E. R. Caley: "The Leiden Papyrus X," *Journal of Chemical Education* 3 (1926), 1149-1166.

Papyrus Magicus Parisiensis

[326] For a convenient list, see the *Encyclopaedia Britannica* 15th ed., s.v. 'Cats', 999. See also P. M. Soderberg: *Pedigree Cats, their varieties, breeding and exhibition,* (London 1958), 8-67.

[327] *P. Leiden V.* 4a.2.

[328] *Ibid.* 9a.32.

[329] *P. Leiden W.* ia.25-6.

[330] The history of Persian cats, or Angoras as they used to be called, is obscure. There are records of long-haired cats existing in Persia, but their exact origins are a mystery. See Sonderberg: *op.cit.* 6 and *Encyclopaedia Britannica,* 999. It is interesting to note that white cats imported into Japan from China in 999 A.D. had blue eyes, and that the Burmese cat is supposed to have metamorphosed from a golden into a blue-eyed cat under the influence of Taun Kyankze, a goddess with eyes of sapphire. See F. Mery: *The Life, History and Magic of the Cat,* trans. E. Street, (London 1967), 25 and 48-9.

Papyri Russischer und Georgischer

[331] The sense of these very fragmented lines, which come from a treatise on ophthalmology, is that γλαύκωμα is a change of the μελα[ίνης] pupil to γλαυκήν. Cf. ps-Galen: 'γλαύκωμα is a change of the natural moistures to the colour γλαυκόν,' *Definitiones Medicae* 344 = K 19.435.

[332] This is dated 7th November, 141 A.D.

[333] *Trachiniae* 573, 687 sq.

[334] There is no likelihood of textual corruption—no room for γλεύκους, for example. The reading is quite clear, even though the editor's entry in his Index expresses some puzzlement. For a similar specialised usage, cf. Archestratus: *Hedypatheia* fr. 28.5 and 41.7. Notice the connection between Greek οἶνος and Arabic *wayn* meaning 'black grapes:' and notice, too, χαροπή, a species of grape, Pollux: *Onomasticon* 6.11 (82). R. Hübner, however, merely understands that γλαυκός is an alternative spelling of γλεῦκος, 'Four Oxyrhynchos Papyri,' *ZPE* 30 (1978), 207. For the reasons I have just advanced, I am not so sure that the answer is as simple as that.

Papyri Cairo Zenon

[335] This is, perhaps, a nickname, ὁ χαίμος, derived from the Coptic ϭⲁⲓⲙⲉ meaning *fowl* or *chicken*—a reference to the boy's tender years. Cf. χαίμιον, *P. Oxy.* 1656.14 and the use of νεοσσός by Euripides in *Alcestis* 403, *Andromache* 441. Cf. also Theophrastus: *Characters* 2.6, *A.G.* 9.567.2 (Antipater of Sidon), Aristophanes: *Aves* 767.

[336] This is dated about 12th May, 257 B.C.

[337] See my discussion of *Cyranides,* note 2. There is no date for this passage.

Pausanias

[338] Next to the temple of Hephaestus in Athens.

[339] Frazer ad locum quoted Leake, "very bright...deep blue," and Baedeker, "appears bluish-green," *Pausanias's Description of Greece,* 6 vols. (London 1898), 3.453.

[340] It sounds as though Pausanias was describing from memory — ἐμοὶ δοκεῖν he said of the colour. One's impression is that the statues were of bronze, whose eyes presumably were made of enamel or similar inlay. For the technique of adding eyes to bronze statues, see J. Charbonneaux: *Greek Bronzes,* trans. K. Watson, (London 1962), 36-7.

[341] R. W. Macan thought that 'the Daughter of Poseidon and Tritonius' was probably a Libyo-Phoenician goddess, like Astarte, *Herodotus, Books IV-VI,* (London 1895). See also L. R. Farnell: *The Cults of the Greek States,* Vol. I, (Oxford 1895), 266-70. P. Levi's note ad locum in his Penguin translation (1971) is most peculiar. "The origin of the grey-green eyes is not really Libyan but Homeric: the word that looks like 'grey-eyed' can also mean 'owl-faced'. Maybe it meant owl-eyed: she could see in the dark?" This point was firmly dealt with by M. Carroll: *The Attica of Pausanias* (Boston 1907), 83. Cf. 'azure eyes' in T. Taylor's translation (London 1824), and 'blue' in Frazer's.

[342] *Travels in the Footsteps of Bruce,* (London 1877), 285.

[343] See also A. Thwaite, who quotes from Playfair, *The Deserts of Hesperides,* (London 1969), 63-4, and T. H. Dyer apud *Dictionary of Greek and Roman Geography,* s.v. 'Triton'. Cf. Playfair, 269.

Pelagonius

[344] See Pauly-Wissowa: 19.245.

[345] Reading δυσγαργάλιστον. Beckh printed δυσγαγγάλιστον which does not exist elsewhere and to which it is difficult to assign a meaning. The passage was quoted by Anatolius: *De Equis* 1.17.1 [apud *Corpus Hippiatricorum Graecorum* 2.327]. Cf. Aristotle: *GA* 5.1 (779b.4).

Philostratus

[346] It is unusual to find γλαυκός referring to the sky at night. Usually it was the Dawn which was γλαυκός, as in Theocritus 16.5. But see my remarks supra 118, and cf. the Arabic habit of translating γλαυκός as *dark blue.*

[347] The context is very important. Amymone has just dropped a golden pitcher. Her pale features (λευκόν) are tinged by the gold, just as the water reflects the colour, too, (ὁ χρυσὸς περιστίλβει κεράσας τὴν αὐγὴν τῷ ὕδατι). The water is thus blue (γλαυκόν) and golden-yellow (χαροποῦ), and in another volume I show that *amber* is indeed the normal meaning of χαροπός.

348 Cf. Theocritus 7.59.
349 *Modern Greek Folklore and Ancient Greek Religion,* 9.
350 Lawson, 12, 13.
350a Cf. the Moroccan proverb, "Don't marry a blue-eyed woman, even though she have money in her box," quoted by E. S. Gifford: *The Evil Eye,* (New York 1958), 22.
351 Vegetius: *De re militari* 4.37. See also Pliny: *N.H.* 35.41 (149) and 31 (49). Cf. an anonymous 15th century paraphrase of Vegetius,

"The sail, the mast, and every mariner
With sea colour were clad for to unappear."

352 *Ulysses Found,* (London 1964), 50-52.

PHILOSTRATUS JUNIOR

353 He was a grandson of Philostratus supra. See A. Fairbanks's remarks in the introduction to his Loeb edition (1931), 275-280.
354 See supra, 42-5.
355 Cf. Lucian: *Dialogi Deorum* 8 and my comments ad locum.

PLATO

356 Cf. Adamantius: 1.16.
357 Cf. Plutarch on the Moon in eclipse at dawn, *Moralia* (De facie quae in orbe lunae apparet 21), 934d. I do not understand Cornford's, "dark blue mixed with white [is] pale blue-green," *Plato's Cosmology,* (London 1937), 278, except as a perverse wish to include γλαυκός = sea-colour = green, an interpretation not necessarily correct, and obviously wrong in this Platonic context. In fact, R. M. Brumbaugh has suggested that this passage provides evidence that Plato was partly red-green colour blind, "Colours of the Hemispheres in Plato's Myth of Er, Republic 616e," *CPh* 41 (1951), 176, note 11.

PLOTINUS

358 I find S. McKenna's translation odd—"just as we class him fair from his eye's being blue," (2nd revised edition, London 1956)—because it distorts entirely what Plotinus was saying. The argument is plainly synecdochic.

PLUTARCH

359 This is followed by the anonymous couplet beginning, "πυρρὸν, πανδακέτην, γλαυκόμματον κτλ." For other combinations of πυρρός and γλαυκός, cf. Hephaestion: 2.2.32 and 3.45.9 (which contradict each other), and Hippolytus: *Refutatio* 4.15, 4.18, 4.19. This is also the description of fierce Aethiopian bulls, Aelian: *N.A.* 17.45. See further, M. Delcourt: *Pyrrhos et Pyrrha,* (Paris 1965), 13, 17.
360 Cf. Adamantius: 2.36a. Callistratus: *Imagines* 14.5. Cornutus: 20a.
361 Cf. Josephus: *A.J.* 12.113. Vettius Valens apud *C.C.A.G*: $5^2.61^{32}$.
362 This sounds as though it is a metaphor taken from laundering. I suggest supra (sub *Praecepta gerendae reipublicae* 28), that γλαύκινος is an adjective derived from a plant which gives a γλαυκός dye. Constant washing, which included treading out the dirt in trenches filled with water (*Odyssey* 6.91-5), would cause the non-fast dye to fade but never to disappear altogether. For a similar psychological idea of colour, see Plato: *Phaedrus* 253e. Cf. the Christian idea in Ambrose, "vestem illam ablutionis et gratiae sordidarunt," *De Poenitentia* 2.9.88 = Migne, *P.L.*: 16.518.

[363] Part of Timarchus's vision in the crypt of the Trophonius oracle. The reference is probably to the Milky Way, in which case we have a second example of γλαυκός referring to the night sky. For the first, see Philostratus: *V.A.* 2.5.

[364] Plutarch has been arguing that the red-brown colour of the Moon during an eclipse is actually a reflection from the Sun, that is to say, caused by refracted light, which conclusion is perfectly true. Lakes and rivers open to the Sun, he says, are tinted by the coloured awnings spread over them. It is the Sun which causes the varieties of colour one sees in Nature. Hence, a star or fire deprived of sunlight could not shine.

[365] Only once, at *Iliad* 16.34.

[366] Cf. the remarks of J. Charbonneaux: *Greek Bronzes*, 40.

[367] Chemical analysis of bronze coins from Corinth and Sicyon, for example, revealed the following.

	Corinth	*Sicyon.*
Copper	85.58	77.87
Tin	8.15	7.15
Lead	4.78	13.50
Iron	0.45	0.38
Oxygen and undetermined matter	1.04	1.10

It must be added, however, that Corinthian bronze was noted for being odd. T.L. Shear: "A Hoard of coins found in the theatre district of Corinth in 1930," *AJA* 2nd series, 35 (1931), 140.

[368] I am grateful to Dr. J.A Davies for this information.

[369] Philinus has wondered earlier (395b) if there were not some ancient process employed in casting bronze similar to tempering swords. It is well known that when steel is tempered, the metal passes through various shades from yellow to dark blue as oxidisation takes place. The parallel drawn by Philinus leaves no doubt that we are dealing with a blue patina, not a green one. This, in turn, has its effect on one's interpretation of γλαυκοτέραν. Bronze remains from Delphi are not very helpful. The most obvious example is the charioteer. The best illustration is in K. Anazawa: *Greece* [*Sculpture of the World* IV], (Shogakukan 1974), 15. A dirty dark green is the nearest description of the patina. Other illustrations of the same piece—R.V. Schoder: *Masterpieces of Greek Art*, (New York n.d.), plate 28; C.M. Bowra: *Classical Greece*, (Time-Life 1965), plate 29; Charbonneaux-Martin-Villard: *Classical Greece*, trans. J. Emmons, (London 1972), fig. 101—serve only to show how completely unreliable colour-printing can be, since they vary from light brown to dark blue. The British Museum collections include only one bronze from Delphi, a statuette of a warrior of the Geometric period, (Reg. No. 1939.6-10.1), also of a rather dirty dark green. There are no patinated examples of coins from Delphi in the Museum. It is interesting, however, that the Egyptians seem to have used blue as one of their colours to indicate patina on metal objects. See Forbes: *Studies in Ancient Technology* 9.52.

[370] *Griechische Wortbildungslehre*, (Heidelberg 1917), 161.

[371] X. Mignot agrees, "Sur l'étude sémantique des suffixes," *Mélanges de linguistique et de philologie grecques*, (Paris 1972), 131. There are various plants possible. Γλαύκιον, on which see supra, 24-6. Γλαύξ, Galen: *De simplicium medicamentorum temperamentis ac facultatibus* 6.3.6 = K11.857, and see also P.G. Maxwell-Stuart: "The Glaux, a plant in Dioscorides," *Philologus* 122 (1978), 156. Γλαύκουρις, Galen: *De remediis parabilibus* 2.7.5 = K14.425. H.N. Fowler's translation of γλαύκινον as *grey* in his Loeb edition of the *Moralia* (1936) is unlikely to be correct, as I know of no plant which gives a grey dye. On woad, see R.J. Forbes: *Studies in Ancient Technology* 4.110.

[372] Galen said that one kind of bile was called *woadish* because of woad's γλαυκός colour, *De atra bile* 2 = K5.110. Cf. *P. Leiden X*.101 which gives a recipe for pre-dyeing γλαυκός (ἀντιγλευκειμός) to help produce a 'purple' shade (πορφυρίζον).

De re militari 4.37. Cf. Pollux: *Onomasticon* 4.18 (117-118), and Philostratus: *Imagines* 1.19.3.

[373] He had a curious sense of humour, as the legend about his roasting victims in a brazen bull shows. I am not suggesting that Phalaris and his men actually were pirates. Akragas is two miles from the sea and never had a proper harbour in antiquity. Its wealth came mainly from the land.

[375] Plutarch: *Aemilius Paulus* 17. *Nicias* 23. *C.C.A.G*: 7.131, which is an excerpt from Nechepso and Petosiris.

[376] A series of excellent colour-photographs is given in *Sky and Telescope* 50 (August 1975), 72 sq. Ovid likened a girl's blush to the dark hue of roses, or 'the Moon in labour', *Amores* 2.5.38.

[377] *Light and Colour in the Open Air*, 295. These colours are caused by refraction of the Sun's light passing through our atmosphere.

[378] *Outlines of Astronomy*, 10th ed., (London 1869), 275.

[379] Sub Aristotle: *H.A.* 2.12, supra 32-3. Al-Biruni, an 11th century Arab astrologer, described the Moon as *azarqa* (light blue) and white, sometimes also mixed with reddish yellow; Mercury was *asmanjuni* (sky-coloured) mixed with a darker colour, *Elements of Astrology* §§ 401. See also A Bouché-Leclerq on planetary colours, *L'Astrologie Grecque*, 313-15.

Pollux

[380] I include references from Pollux because, although the extant copies of his work are abridgements and adaptations of abridgements, the nature of the *Onomasticon*, a dictionary, is such that it is unlikely that colour-terms will have greatly altered their meanings, and may be shown in several cases to be quoted from much earlier works.

[381] Contained only in A.

[382] Cf. Plutarch: *Moralia* (De sera numinis vindicta 26), 565c.

[383] Or γλαύκινον = B.

[384] According to Homer, Thamyris challenged the Muses to a singing-contest and was 'wounded' in the eye (πηρός) as a result, *Iliad* 2.594-600. One γλαυκός eye sounds as though he was probably afflicted by a form of glaucoma. Cf. Aristeas: *Epistula ad Philocratem* 316.

[385] ὑπόγλαυκοι in the texts of Xenophon, with χαροποί and ὑποχαροποί as alternatives. Χαροποιός is the alternative reading to χαροπός in Pollux. The passage is a reminiscence of Xenophon: *Cynegeticus* 5.23. A different reading gives λευκός instead of γλαυκός. Cf. *Cyranides* 2.10.19 (p. 64), and see my note ad locum supra, 216, note 217. Xenophon's adjectives must refer to hares' eyes because their coats have just been described.

Ptolemy

[386] 3.11 (143) in the Loeb edition (1940). See also Proclus: *Paraphrasis in Ptolemaei Libros IV*, 3.16 (1654 edition), and Hephaestion: *Apotelesmatica* 2.12.7.

[387] 3.12 (149), Loeb edition.

Rufus

[388] Cf. pseudo-Galen: *Definitiones Medicae* 344 = K19.435, and *Ibid.* 363 = K19.438. *Medicus* 16 = K14.775. Ruelle's note ad Rufum says, "Toutefois, le mot

γλαυκός nous a paru ... signifier plutot bleuâtre, glauque ou gris," (p. 441 of his edition), but see supra 00-0 my notes on Antiochus. Cf. J. Sichel: *Mémoire sur le glaucome*, (Bruxelles 1842), 124-154.

Strabo

389 The *Epitoma Palatina* reads ὑπογλαυκίζοντος.

390 Pliny mentioned that they had been opened recently, *N.H.* 36.4 (14). The Luna quarries provided the material for Augustus's boast that he had found Rome a town of sun-dried brick and left it a city of marble, J. Ward Perkins: "Tripolitania and the marble trade," *JRS* 41 (1951), 99.

391 See further *Enciclopedia dell'arte antica, classica e orientale* 4.861-2.

Vettius Valens

392 = *C.C.A.G*: $5^2.61^{22}$.

Xenophon

393 In his reference to this passage, Pollux called them ἐπίπυρροι, *Onomasticon* 5.68.

394 ὑποχαροποί = codd. except AB.

395 *A.G.* 6.102. Waltz, "noircissante," (Budé ed., 1931).

396 Notice, too, the balance of ξανθοχίτωνα ... χρυσοχίτωνα. Apuleius used περκάζειν of olives beginning to ripen, *Geoponica* 9.19.2.

397 Theophrastus: *H.P.* 9.11.7. Cf. *C.P.* 3.16.3. Chaeremon tragicus, fr.12.2. LXX *Amos* 9.13. *I.G.* $12^5.739^{168}$. Philo: *De Josepho* 17.91, ὑποπερκαζούσης. Cf. *De Vita Mosis* 1.41 (230).

398 Cf. περκαίνειν = διαποικίλλεσθαι, and περκνόν = μελανόν, ποικιλόν. Dioscorides said that the ripening of grapes coincides with the efflorescence of grape 'bloom' which, on dark grapes, is often of a light blue shade, *De Materia Medica* 5.2. Hence, perhaps, the reason for Hesychius's curious gloss on περκνός = γλαυκός, μέλας, καὶ τὰ ὅμοια.

399 See *Gray's Manual of Botany*, 6th ed., (London 1950), 931. The corolla is the conspicuous whorl of leaves or petals forming the inner envelope of the flower.

400 This is more likely to be 'becomes discoloured'. Littré ad locum = "se décolore"; M. Vegetti, "prende un cattivo colore," *Opere di Ippocrate*, (Turin 1965). "Gets a bad colour" = E.T. Withington, Loeb ed. 1927.

401 "Ayant une couleur rouge", (Littré), "rossiccio", (Vegetti), "reddish", (Withington).

402 That is, to become gangrenous or mortified.

403 "Jaunâtre", "giallastro", "yellowish", are much closer to the meaning than "pale".

404 "Off-white" is probably the best translation. See A.C. Moorhouse, "'Ex- in colour adjectives," *CQ.* n.s. 4 (1954), 96. "Blanchâtre" will do. "Bianchissimo" and "dead white" give entirely the wrong impression. This translation is by F. Adams, *The Genuine Works of Hippocrates*, (London 1939), 157-8.

405 Littré gives "noirâtre", Vegetti, "colore scuro", and Withington, "dark coloured". Other references are to the adder, Nicander: *Theriaca* 129, and pseudo-Aristotle: *De Mirabilibus Auscultationibus* 165 (846b.18). The Scholiast on Nicander tells us that περκνός means μέλας καὶ στικτός, which could well refer either to *Vipera aspis* or *Vipera berus*. The latter is more likely. This, the common European viper, may have a great variety of ground colours, grey, green, red, light brown, reddish

brown, and dark brown. Its undersides are dark grey or black and it has dark blotched markings along the flank. See J.W. Steward: *The Snakes of Europe*, (London 1971), 160-1. The bull which frightened Pasiphae had dark red hair on its cheek. "Οἰνωπὸν ἐξέλαμπε περ[καί]νων γένυν", Euripides: *Cretans* fr. 4.15, and I suspect that Teiresias's beard, beginning to show, (περκάζων γένεια), was of a dark brown or chestnut colour, Callimachus: *Hymn* 5.76.

[406] *Greek Birds*, s.v. περκνός (i).

[407] Oppian of Cilicia: *Halieutica* 1.131.

[408] Ἐπιχρύσους and ἐπαργύρους, Herodotus: 1.50. Cf. Xenophon: *Memorabilia* 3.10.14 and Lucian: *De Domo* 8.

[409] Plutarch: *Moralia* (De Pythiae Oraculis 3), 395e.

[410] Plato: *Republic* 601a.

[411] Diodorus Siculus: 2.52.5. Notice, too, that apple blossom is very accurately described as white with crimson on top (λευκὸν ἐπιπορφυρίζον), pseudo-Aristotle: *De Coloribus* 5 (796b.14). Cf. Theophrastus: *H.P.* 3.18.2 on *Vitex agnus-castus* and O. Polunin: *Flowers of Europe*, no. 1087 and plate 106. Theophrastus: *Ibid.* 4.6.7 (*Cistus villosus*) and Polunin, no. 787 and plate 77 (sub *Cistus incanus*).

[412] E.C. Marchant translated ἐπίπερκνοι as "dark brown" and ἐπίξανθοι as "chestnut", (Loeb ed., 1925). I agree with the first but think that the latter suggests too much red for ξανθός.

[413] *De re rustica* 3.12.5.

[414] *Étude sur les termes de couleur dans la langue latine*, (Paris 1949), 71-2.

[415] G.V. Gentili: *La Villa Erculia di Piazza Armerina: I Mosaici Figurati*, plates 19 and 42. S. Aurigemma: *L'Italia in Africa: Tripolitania*, Vol. I, part 1, plate 128. Aurigemma elsewhere calls this a rabbit, *I Mosaici di Zliten*, (Rome-Milan 1940), 115. But the animal is shown eating grapes and hares were notorious as raiders of vineyards. See further R. Billiard: *La vigne dans l'antiquité*, (Lyons 1913), 395. For similar reasons, the light brown creature eating grapes in a Pompeian still-life is also likely to be a hare. See J-M. Croisille: *Les natures mortes campaniennes*, (Brussels 1965), plates 77, 81, and the modern colour-version, plate H. Cf. the rabbit in plate 79. See also M. Chebab: "Les charactéristiques de la mosaïque au Liban," *Actes du Colloque international sur la mosaïque gréco-romaine 1963*, fig. 8. E. Kitzinger: "Stylistic developments in pavement mosaics in the Greek East," *Ibid.* fig. 15. R.B. Bandinelli: *Rome, the late Empire: Roman Art A.D. 200-400*, plate 317.

[416] R.P. Hinks: *Catalogue of the Greek, Etruscan, and Roman Paintings in the British Museum*, 145. There is no colour-plate, but see fig. 164 for a black and white photograph.

[417] S. Charitonidis, L. Kahil, B. Ginouves: *Les Mosaïques de la Maison du Ménandre à Mytilène*, 22 and fig. 13 (3). See also G. Caputo and A. Driss: *Tunisia, Ancient Mosaics*, plate 31 (colour).

[418] C.V.A. *Great Britain* 391.4, 5, 6. The top of the heads and the feet are painted red. The date in each case is late seventh or early sixth century B.C.

[419] C.V.A. *Great Britain* 137.4. *U.S.A.* 19.5 and 382.2. Cf. *Greece* 33.2, *Poland* 69.9a, b, *Great Britain* 277.3, *Germany* 297.3 (plain, no dots). See also a white Attic lekythos in the British Museum, apud A.S. Murray and A.H. Smith: *White Athenian Vases in the British Museum*, plate VI.

[420] *Hounds and Hunting in Ancient Greece*, 62. Hull, like Marchant in the Loeb translation of Xenophon, translates ὑποχάροποί as *blue* and ὑπόγλαυκοι as *grey*.

[421] *Hare = Fur and Feather Series* 5, ed. A.E. Watson. Cf. O. Keller: *Die Antike Tierwelt*, 1.212. Pauly-Wissowa: 12^2.2080 s.v. *lepus*. Eye-colour is not discussed. G. Benoist wrote only of "gros yeux jaunes," and (quoting someone else), "ses yeux d'ambre," *Lièvres et Levrauts*, 42, 120.

[422] This is pointed out by Hull. *loc.cit.*

[423] See H. Tegner: *Wild Hares*, 20.

[424] See F.H. van den Brink: *A Field Guide to the Mammals of Britain and Europe*, 76 and plate 7, no. 4.

[425] A verifiable fact which should have prevented Delebecque from translating χαροποί as *bleu clairs* and γλαυκοί as *verdâtres* in his Budé edition (1970). He is not alone, however. J.B. Gail gave an odd translation of χαροποί, "une couleur tirant sur le noir," *Traité de la chasse* de Xénophon, (Paris 1801).

[426] See Grzimek: 12.424, no. 8 and 446, no. 2. See also J. Sheail: *Rabbits and their History*, 24.

Alcaeus

[427] This is a single word. Page suggested that it could agree with 'Αθανάας, a proposition originally made by Diehl, or with Ἥρας, *Sappho and Alcaeus*, (Oxford 1955), 167.

[428] Pliny recorded the existence of two grapes, *cinerea* and *asinusca*, which were probably grey, *N.H.* 14.4 (42). *Vitis* can refer to all kinds of climbing plants other than grape-vines and Florentinus, apud *Geoponica* 5.17.4 recorded a number of them. But ἀμπελ[signifies that Alcaeus was describing the grape-plant and not another.

[429] H. Martin, "One [general characteristic of Alcaeus] is the tendency to refer to the specific and concrete rather than the general and abstract. The other is the use of descriptive epithets and phrases that focus the reader's attention on a clear and concrete feature of an object to which reference is made," *Alcaeus*, (New York 1972), 43. I. Kazik-Zawadzka tried to maintain that Alcaeus was here influenced by Homer's γλαυκὴ θάλασσα, *De Sapphicae Alcaicaeque elocutionis colore epico*, (Bratislava 1958), 92. But that usage occurs only once in Homer, and then for a specific purpose not applicable to Alcaeus. For my comments, see supra Homer s.v.

[430] See *Hillier's Manual of Trees and Shrubs*, (Newton Abbot 1972), 454, and W.J. Bean: *Trees and Shrubs Hardy in the British Isles*, 7th ed. (London 1951), Vol. 3.533.

Anacreontea

[431] See Edmonds's note in his Loeb *Elegy and Iambus* II (1931), 15-16.

[432] Cf. infra, Anon apud *Lyrica Adespota Alexandrina* 10.3.

Anonymous

[433] J.U. Powell: *Collectanea Alexandrina*, (Oxford 1925). This is one of the few occasions on which γλαυκός is used as a noun. Cf. *Anacreontea* 57b.4.

[434] The god is γλαυκός because he is connected with the sea as the fishermen's patron. The adjective is unusual and I cannot find another example of its being applied to Priapus, on whom see further H. Herter: *De Priapo*, (Giessen 1932), 215-20.

[435] The city is the famous temple of Athene on Lindos and the favours of the goddess are her olive-trees. The poem is an inscription, *I.G.* 12^1.783.

[436] Ed. A. Barigazzi, (Firenze 1966).

Antipater of Sidon

[437] The play upon words was obviously irresistible. Cf. Gregory Naziazenus: *Carmina* 1, sect. 2.28.235 sq.

Antiphilus

[438] M.L. Trowbridge: *Philological Studies in Ancient Glass*, (Illinois 1928), 51. Cf. R.J. Forbes: *Studies in Ancient Technology*, 5.146. A brief check on a single set of 26 finds in Crete revealed that 17 were of a greenish cast. See G.D. Weinberg: "Glass Manufacture in Ancient Crete," *Journal of Glass Studies* 1 (1959), 12 sq.

[439] D.B. Harden: "The Glass of the Greeks and Romans," *G&R* 3 (1934), 143. Cf. Forbes's tables of the composition of Roman glass, *op.cit.* 221-28.

[440] D.B. Harden: *Roman Glass from Karanis*, (University of Michigan 1936), 6. See also J. Price: "Glass", *Roman Crafts*, ed. D. Strong and D. Brown, (London 1976), 116.

[441] Trowbridge, "*Glaukos* clearly meant 'blue-bright', 'grey-blue-bright'," *op.cit.* 19. H. Cole, "The visual colouration produced by iron in glass is markedly affected by the state of oxidation. Ferrous iron (i.e. reduced state) produces a bluish colour," 'Analyses and Discussion of the Caerleon Window Glass.' *Journal of Glass Studies* 8 (1966), 46. The fourth main colour in the Karanis collection is blue, Harden: *Roman Glass from Karanis*, 7. For a general commentary on Antiphilus's poem, see K. Müller: *Die Epigramme des Antiphilos von Byzanz*, (Berlin 1935), 48-50.

Aratus

[442] See Pauly-Wissowa: 2.391-99.

[443] See A.P. Norton: *Star Atlas* 16th ed. (Edinburgh 1973), maps 5-7. R.H. Allen: *Star Names and their Meanings*, (New York 1899), 264 sq. C. Whyte: *The Constellations and their History*, (London 1928), 254-5.

[444] E. Maass: *Commentariorum in Aratum Reliquiae*, (Berlin 1898), 255.

[445] Hence, Cicero's *fulgentem Leporem* does not accurately translate Aratus. See V. Buescu: *Cicéron, Les Aratea*, (Hildesheim 1966), 231.

[446] *Aratos Phainomena*, (Munich 1971), 25. Cf. the Scholiast ad locum. "γλαυκοῦ εἶπεν ἤτοι ἀναφέρων ἐπὶ τὸ ζῴδιον," [sic MK; Martin printed ζῷον], "ἢ καὶ τὸν τοῦ οὐρανοῦ τοπὸν ἐν ᾧ ὁ Λαγώος, οὐ πάνυ εὐάστερον ὄντα, χρῶμα δὲ καὶ μόνον οὐρανοῦ παρεχόμενον οἷον γλαυκίζον."

[447] As Plutarch pointed out, *Moralia* (De facie quae in orbe lunae apparet 21), 934e.

[448] See J. Pickering: *1001 Questions answered about Astronomy*, 4th ed. (London 1972), nos. 472-4. M. Minnaert: *Light and Colour in the Open Air*, 300-1, where he gives examples. Cf. Himerius: *Orationes* 12.37.

Archestratus

[449] = Athenaeus 7.310c.

[450] = Athenaeus 7.320b. In his Loeb edition of Athenaeus (1929), C.B. Gulick translated γλαυκός each time as *yellow*. In this second fragment, γλαυκῷ was supplied by Bussemaker.

[451] Supra 66, sub *P. Ross-Georg.*

[452] See *Encyclopaedia Britannica*, 15th ed. s.v. 'Olive'.

[453] K.D. White describes the Roman process of making oil, *Farm Equipment of the Roman World*, (Cambridge 1975), 225-33. Cf. the use of the colour-term *white* (λευκός) to refer to clear or pure oil, *P. Leiden V* col. 1a.25, and *Hippiatrica Berolinensia* 2.31.

Marcus Argentarius

[454] See S.G.P. Small: "Marcus Argentarius, a poet of the Greek Anthology," *YCLS* 12 (1951), 67-78.

[455] For comment, see my remarks on Alcaeus, supra 79. Small's reference to Accius fr. 221 is not helpful because *glauco* there refers not to the vine but to ivy, the play being about the *Bacchae*. Gow and Page [*The Garland of Philip*] direct one to Sophocles: *Trachiniae* 703, but his adjective refers to the grape, not to the leaf.

BACCHYLIDES

[456] On the glaucous olive-leaf, see my comments on Cornutus 9. H. Kriegler listed γλαυκός under *Green* on the strength of this reference, *Untersuchungen zu den optischen und akustischen Daten der bacchylideischen Dichtung*, 17, 19-20. As can be seen from this example, her appreciation of colour is not very perceptive. See the sound remarks on her work by D.C. Innes, apud *CR* n.s. 22 (1972), 15-16.

COLLUTHUS

[457] Cf. Nonnos: *Dionysiaca* 7.249.

DIONYSIUS PERIEGETES

[458] *N.H.* 37.20 (76-77).
[459] Cf. Isidore: *Etymologiarum Libri* 16.7.5.
[460] See *Encyclopaedia Britannica* 15th ed., s.v. 'Gemstones', 970 and the coloured illustration on 975, fig. 6. See also B.W. Anderson: *Gemstones for Everyman*, 172-9.
[461] *P. Holm.* 9.7-10 and 10.41-5.
[462] *Ibid.* 9.10-13.
[463] *Ibid.* 8.10-15. Cf. 12.22-7. Lagercrantz did not remark on the peculiarity of these two recipes. I am grateful to Dr. W.J. Jones and Dr. P.J. Wheatley for their comments on these passages.
[464] Book 3, p. 50B in this edition. The same translation appeared again in 1547, when the reference is Book 3, p. 47B.
[465] By H.C. Gent. The reference is Book 3, chapter 17.
[466] The reference is Book 2, chapter 3.
[467] That is, by the infiltration of colouring vapours.
[468] The version by Rufus Festus Avienus gives no adjective for *beryllum* but does call the *iaspis* 'glauca,' [*Geog. Min.* II. 184].
[469] *The Commerce between the Roman Empire and India*, (Cambridge 1928), 251.
[470] Veluriya gives rise to βήρυλλος through metathesis r > l. Actually I am not satisfied with this etymology, and shall be commenting upon it at length in a forthcoming work on gemstones. But the point I am making here is not affected.
[471] *AG* 9.544. Cf. Achilles Tatius's description of the violet (τὸ ἴον), like a shining calm at sea, *Leucippe and Clitophon* 1.15. Violets are usually deep violet, lilac, or yellow in colour, none of which is particularly appropriate to the sea. But *Viola elatior* has large, solitary pale blue flowers and is found in Central and South-East Europe, including Greece. See Polunin: *Flowers of Europe*, no. 780. [Other pale blue varieties, *Viola canina* and *Viola persicofolia* are not found in Greece]. Cf. also γλαυκά Galaneia, Euripides: *Helen* 1457. Eustathius noted that the beryl was called ὑγρά because γλαυκά bodies seem to be liquid because they are translucent. Hence the adjective is applied to the sea, *Commentarii ad D.P.*, 1012.
[472] *De Gemmis* 11 and see my comment supra, 50.
[473] *Excidium Ilii* 70.
[474] See G.F.H. Smith: *Gemstones*, 14th ed., 314 and plate V. Müller's translation of γλαυκιόωντα as *flavescentia* takes no account of the varieties of topaz, and is not only wrong but careless.
[475] See further P.G. Maxwell-Stuart: "Epiphanius on Gemstones," *Journal of Gemmology* 15 (1977), 436-7.

Empedocles

[476] This theory will account for the remark of the Scholiast on Pindar *Olympian* 6.45 (76d) concerning γλαυκῶπες: "ἡ πυρώδεις. τὸ γὰρ γλαυκὸν ἐπὶ τοῦ πυρώδους ἔθεντο πολλοὶ καὶ τὴν σελήνην γλαυκὴν λέγουσιν."

[477] This is the only example of γλαυκήπορος. The author is unknown and should be dated after Aratus, i.e. post fourth century B.C. See E. Maass: *Commentariorum in Aratum Reliquiae*, xxxii-iii.

[478] *Flowers of Europe*, no. 1296.

[479] J. Zafiropoulo, in his Budé edition (Paris 1953), took βύσσῳ to mean *with purple* rather than *with linen*. Although the meaning of βύσσος is not certainly known, I hardly see that it makes much sense to speak of mingling the juice of black berries with purple. What good would that do? Y. Battistini hedged his bets by giving the correct translation, preceded by one entirely incorrect—"la teinture de cochenille pénètre le lin blond," *Trois contemporains, Héraclite, Parménide, Empédocle*, (Librairie Gallimard 1955). Presumably, he took κοκκός to refer to the kermes 'berry', although he had to ignore γλαυκῆς ἀκτῆς which will not then make sense. Nor is 'blond' in the text. The fruit of *Sambucus racemosa* is scarlet, but Empedocles was writing of the other plant, the one distinguished by its glaucousness, so even that misunderstanding of κοκκός would not make sense. J. Bollack rejected any colour-sense for γλαυκῆς other than a reference to "la luminosité du safran jaune," a notion one can only describe as perverse, *Empédocle*, 3.575, note 4. Cf. *Ibid.* 1.294-5.

Eratosthenes

[480] According to R. Halleux, κύανος was a form of azurite, "Lapis lazuli, azurite ou pâte de verre? A propos de kuwano et kuwanowoko dans les tablettes mycéniennes," *SMEA* 9 (1969), 47-66.

[481] *De Lapidibus* 31.

[482] *Ibid.* 37. A Rosenfeld remarked, "A blue paint, ultramarine, can be made from the semi-precious brilliant blue stone, *lapis lazuli*. However, if lapis lazuli is simply powdered and used as a pigment it gives a faint, rather greyish blue colour and the preparation of clear blue ultramarine was probably not known before mediaeval times," *The Inorganic Raw Materials of Antiquity*, (London 1965), 184.

[483] L. Bachmann: *Anecdota Graeca* 182.12. Cf. Suidas s.v. γλαυκός. *Etymologicum Gudianum* 126.3. Zonaras 438.

[484] *Timaeus* 68c.

[485] See also M.L. Trowbridge: *Philological Studies in Ancient Glass*, 11-19. J. Duchemin noted, "Le lapis est d'un bleu lumineux; à ce titre il évoque aussi la clarté du jour et du ciel serein," *Pindare, poète et prophète*, (Paris 1955), 208, note 3. There is a very good picture of Persian lapis lazuli in F. Rossi: *Mosaics*, (London 1970), plate 62, no. 10.

Euphorio

[486] I.e. Athene. See Julian: *Orationes* 4 (149b).

Euripides

[487] S.A. Barlow illustrates the need for a more exact definition of Greek colour-terms. In reference to this passage, she says, "No other ancient poet describes the sea with such fine perceptions of shade as is shown, for example, in a line from the *Helen*, where the grey-blue sea swell is set against the white surface foam of the

waves with their darker blue underneath," *The Imagery of Euripides*, (London 1971), 15. She then quotes the verse and translates γλαυκός by *green*. The dark blue waves turn a light shade of blue before breaking into not quite white—the colour almost entirely drained from them. An exact progression of shades is indeed noted, blue to light blue to grey being an accurate chromatic sequence. But the effect is completely lost if one starts off with green.

[488] Here is an indication that γλαυκός was not the same colour as χλωρός. Cf. Dioscorides: *De Materia Medica* 2.154.1. Methodius Olympius: *De Lepra* 5.1. An apparent contradiction, Nonnos: *Dionysiaca* 5.178, requires separate discussion.

Gregory Naziazenus

[489] = Migne, *P.G*: 37.873-4.

[490] For a similar pun, see Antipater of Sidon, *A.G.* 7.425.

[491] = Migne, *P.G*: 37.874.

[492] = Migne, *P.G*: 38.249. See also F. Trisoglio: "Il Christus Patiens; rassegna delle attribuzioni," *RSC* 22 (1974), 351-423.

Hegesianax

[493] *Moralia* (De facie quae in orbe lunae apparet 2), 920e.

Herodas

[494] In Nairn's Budé edition (1928), L. Laloy translated γλαυκός as *blond*, an unwarranted extension of the text, possibly to avoid the problem of exactly how to render the colour-term. A.D. Knox's appalling Loeb version (1929) gave *grey*.

Hesiod

[495] Also *Ibid.* 573, 587, 888, 895, 924. *Opera et Dies* 72, *Scutum* 325, 343, 455, 470. *Fr.* 33 (a) 31.

[496] See supra, my discussion sub Cornutus, Addendum.

Homer

[497] Also *Ibid.* 2.166, 279, 446; 5.29, 405, 420, 719, 793, 825, 853; 7.17, 33, 43; 8.30, 337, 373, 406, 420; 9.390; 10.482, 553; 11.729; 17.567; 18.227; 20.69; 22.177, 214, 238, 446; 23.769; 24.26. *Odyssey* 1.44, 80, 156, 178, 221, 314, 319, 364; 2.382, 393, 399, 420, 433; 3.13, 25, 135, 218, 229, 330, 356, 371; 4.795; 5.427, 437; 6.13, 24, 41, 47, 112; 7.19, 27, 47, 78; 11.626; 13.236, 287, 329, 361, 374, 389, 392, 420; 15.9, 292; 16.451; 18.158, 187; 19.604; 20.44; 21.1, 358; 23.242, 344; 24.516, 518, 540, 541.

[498] See my addendum to Cornutus.

[499] "Homeric Epithets for things," *CQ.* 41 (1947), 112. P. Creţia was in doubt whether γλαυκή was meant to indicate the brilliance of the sea or its colour, "Marea Homerica," *Studii Clasice* 2 (1960), 311 (in Rumanian). 'Brilliance' would here be a pointless epithet and if colour is meant, the choice of colour must be significant.

[500] Cf. Hesiod's attitude to the sea, *Opera* 682 sq. I think C. Whitman's remark, "there is even some hint of the *Urmutterschaft* of the ocean in Patroclus's accusation," misses the point, *Homer and the Homeric Tradition*, (Harvard 1958), 146. The sea, in the person of Thetis, is not here a symbol of universal generation,

but the specific 'mother' of Achilles. Its epithet, therefore, must have relevance for him, not for mankind in general.

[501] Achilles, *Iliad* 1.197 etc. Hippocrates, "γλαυκοί parents will produce [γλαυκοί] children," *De aeribus, aquis, locis* 14 = Littré 2.60.

Hymni Homerici

[502] See F. Cassola: *Inni Omerici*, (Milan 1975), 101.

[503] See also *Ibid.* 5.8, 94; 20.2; 28.2, 10. Cassola translates γλαυκῶπις each time as 'dagli occhi scintillanti'.

Hymn to Isis

[504] This is part of an inscription, *I.G.* $12^5.739^{148}$, from Andros. Tethys was the wife of Ocean, mother of the Oceanides, and in later writers, the sea itself. See, for example, Archias apud *A.G.* 7.214, and Lycophron: *Alexandra* 1069, with the Scholiast's note ad locum.

Ibycus

[505] This may be a faulty reading for γλυκέων. See D.L. Page: *Poetae Melici Graeci*, (Oxford 1962), note ad locum. Bowra wanted to retain γλαυκέων as "more precise and less obvious," *Greek Lyric Poetry*, 2nd ed. (Oxford 1961), 257 note 1. I do not understand what he meant by "more precise", but there does seem to be a precedent for Ibycus's using γλαυκῶπις in an odd fashion in his description of Cassandra. See supra, 125.

Limenius

[506] This appears anonymously in the Teubner *Musici Scriptores Graeci: Supplementum* (1899). The sea is the Aegean.

Lycophron

[507] Cf. *Ibid.* 34 sq.

[508] *The Alexandra of Lycophron*, (London 1921), The earlier translation by E. Ciaceri ignored γλαυκῷ ('cane marino') but had very useful notes on Lycophron's employment of κελαινός, *La Alessandra di Licofrone*, (Catania 1901). [Cf. von Holzinger, 'Meerhund', (1895)].

[509] Adamantius 2.36a and the various uses of γλαυκιόων for which see Cornutus, Addendum. Scholiast ad 476, "γλαυκὸς ἐπὶ ὀφθαλμοῦ, λευκὸς δὲ ἐπὶ τοῦ σώματος ὅλου."

Maccius

[510] See Pauly-Wissowa: 14.233.

Mesomedes

[511] See Pauly-Wissowa: 15.1103.

Moschus

[512] Cf. Diodorus Siculus: 1.12.8. Theocritus: 16.5.

Nonnos

[513] Repeated at 7.251.

[514] Cf. Euripides: *Cyclops* 16.

[515] Peter Cunaeus omitted the comma and thus made γλαυκιόων agree with 'Xanthos' which follows. Most editors, however, are rightly agreed that Γλαῦκος ..... γλαυκιόων forms an obvious doublet.

[516] *Comets, Meteorites and Men*, (London 1973), 101-2.

[517] This is not what we mean by *jasper*, but a variety of quartz. See P.G. Maxwell-Stuart: "Epiphanius on Gemstones," *Journal of Gemmology* 15 (1977), 440-1.

[518] This is probably the 'lion-coloured' agate described by Epiphanius. See P.G. Maxwell-Stuart: *art.cit.* and E. Serofim: "Origin of the name Agate," *Journal of Gemmology* 2 (1969), 203.

[519] The *lychnis* was translated by Rouse as 'ruby', (Loeb 1940), but I think this depends too much upon taking λυχνίδες to be the same as λυχνῖται which is not at all the case. Dercylus, the historian, said that the *lychnis* was to be found in the Hydaspes and that it gave forth a musical note, (*De Lapidibus* fr. 11 = Muller, *FHG* 4.388). Lucian described it as shining like fire (πυρώδεα), *De Dea Syriae* 32, which agrees with Dionysius Periegetes: *Orbis Descriptio* 329 and the Orphic *Lithica* 271-9. Pseudo-Plutarch repeated the story about its being musical and called it ἐλαιώδης, the colour of olive-oil, which is yellowish, *De fluviorum et montium nominibus* 1.2 (sub Hydaspes). The general impression one receives, therefore, is of a flame-like jewel rather than a carbuncle. Hence my classing it as the colour of flame. [Notice, too, αἴθοπι λύχνῳ ἁπτομένῳ which implies flame, not glowing coal, parallelled by the earlier αἴθοπι κόσμῳ λεπτοφαής].

[520] The Comte printed μάργαρον, like every other editor, but referred to μάρμαρον in his note ad locum.

[521] *N.H.* 37.32 (107-108).

[522] "Normally the Red Sea is an intense blue-green," *Encyclopaedia Britannica* 15th ed. s.v. On the island, see further R. Cadiou: "L'Île Topaze, le fragment du 'Lithognomon' de Xénocrate d'Éphèse," *Mélanges offerts à A-M. Desrousseaux*, (Paris 1937), 27-33.

[523] The notes by P. Chuvin in the latest Budé edition (1976) are eclectic without being informative, and in addition suffer from not being altogether accurate.

[523a] Cf. 45. 157, of lilies.

[523b] Cf. the golden glow of the mud in the river Pactolus, 13.473; 41.87.

[524] Notice, too, the bloody gleam from a shield (30.235) and the red glow of Dawn (37.87). The faces of both Semele (7.209) and Beroe (41.262) are radiant with beauty, and Glaucus gleams with gold and red (22.149).

[525] *A.G.* 9.544. Cf. also Achilles Tatius: *Leucippe and Clitophon* 1.15 and my note 97 infra.

[526] There is one other example of γαληναῖος being used of the eyes (ὀπωπαί), G. Kaibel: *Epigrammata Graeca*, (Berlin 1878), no. 403.2. This is of much the same date as Nonnos. It is just possible that γαληναῖος would have reminded his readers of γαλήνη, the eye-paint made from native trisulphate of antimony, whose colour is lead-grey, though the cosmetic itself will have been very dark, like *kohl*. See *Encyclopaedia Britannica* 11th ed. s.v. Stibnite.

[527] "A Nonnian Problem," *CR* n.s. 15 (1965), 18-19.

Numenius

[528] There is an interesting account of the tunny by P. Jovius: *De Piscibus* (1534), chapter 6, q.v. On tunny-fishing in ancient times, see C.M. Yonge: "Fisheries in History," *History Today* 25 (May 1975), 332-3.

Oppian of Cilicia

529 I.e. the sea. Cf. *Hymn to Isis* 145 and Dionysius Periegetes: *Orbis Descriptio* 53. S. manuscript reads λευχῆ. The Latin translation by L. Lippius (1534) is "in tanto pelagi coetus tota albicat unda", and that of C. Rittershus (1597)," totum tun caeruleum album redditur mare."

530 λευχῶν S. "Illae per caerula colla/pendent," (1534); "aliae vero genis/caeruleis," (1597).

531 "Sic laetus glaucae sua brachia nectit olivae/Polypus," (1534); "et termitibus in glaucis amorem/traxerunt," (1597).

532 "Caerulei vero super gurgitibus stagni," (1597).

533 "Caeruleo ... ponto," (1534); "caerulea aqua," (1597).

534 "Et glauci late rubet aequoris unda," (1534); "caeruleum autem rubescit mare," (1597).

535 Ashley Montagu: *The Dolphin in History*, (Los Angeles 1963), 5-6.

536 J.R. Norman and F.C. Fraser: *Giant Fishes, Whales and Dolphins*, (London 1937), 128. See also their colour-plate VIII, though this is not very clear. Cf. G.V. Gentili: *La Villa Erculia di Piazza Armerina: I Mosaici Figurati*, plate xxxviii.

537 F.H. van den Brink: *A Field Guide to the Mammals of Britain and Europe*, 173, and see the picture opposite 161.

538 A. Alpers: *Dolphins*, 2nd ed., (London 1963), 52.

539 For example, see the colour-photograph in R. Stenuit: *The Dolphin, Cousin to Man*, trans. C. Osborne, (London 1968), opposite 41. Paintings and mosaics reflect the variety of colouring to be found among dolphins, although one must bear in mind, too, the dictates of artistic fashion or the latitude of its licence. The 'Dolphin Fresco' at Knossos was described thus by Sir Arthur Evans. "The body colour of the upper part of the dolphins and of their fins is a deep blue ... more ultramarine than cobalt in tone, with black outlines. A double band of orange yellow runs along their sides and their bellies are of a creamy white," *The Palace of Minos at Knossos*, 1.543 and 3.fig. 251. Cf. M.L.M. Matini: *Mosaici Antichi in Italia*, plate xvi. Charbonneaux- Martin-Villard: *Hellenistic Art 350-50 B.C.*, no. 168. G. Caputo and A. Driss: *Tunisia, Ancient Mosaics*, plate 2. S. Aurigemma: *L'Italia in Africa; Tripolitania*, 1. plate 88. On the Amia, see D'Arcy Thompson: *Greek Fishes*, s.v. He identified it with the Pelamyd or Bonito.

Oppian of Syria

540 "Verum acribus oculis praeditos (caesios) in caesios leones," C. Rittershus (1597).

541 "Caesiae sunt pupillae sub palpebris fulgentibus; caesiae sunt simul, et intius purpurascunt," (1597).

542 "Bacchis autem caesios fecit oculos," (1597).

543 On γλαυχοί horses, see my note on Aristotle: *G.A.* 5.1. (779b.4).

544 On γλαυχιόων, see supra, sub Cornutus, Addendum.

Oracle

545 This is repeated in *A.G.* 14.34.

Oracula Sibyllina

546 See C. Alexandre: *Oracula Sibyllina* 2nd ed. (Paris 1869), xlvi-vii. Pauly-Wissowa: 2A.2139-2151.

[547] In a translation published in 1713, Sir John Floyer rendered γλαυκήν in this and the next quotation by *sky-coloured*.

[548] See further J.G. Gager: "Some attempts to label the Oracula Sibyllina, Book 7," *HThR* 65 (1972), 91-7.

Orphica

[549] See G. Dottin: *Les Argonautes d'Orphée*, (Paris 1930), clvii-viii.

[550] Dottin translated this as "aux yeux pers."

[551] Dottin, "l'eau verdâtre de la mer."

Philippus

[552] I.e. Athene.

Phoenix

[553] Cf. Anon. Byzantinus, 'ὀφθαλμοὶ ὀλίγον τὸ γλαυκὸν ἔχοντες, πλέον δὲ τὸ λευκὸν φιλαργύρου τρόπον πόρνου τε καὶ δυσγνώμονος δηλοῦσιν,' *Physiognomica* 3 = Forster II.226.

Pindar

[554] Cookesley, *silver-grey*; Gildersleeve, *greyish-green*; Myers, *pale-gleaming*. As commentators have long pointed out, Pindar has confused the wild olive with the cultivated.

[555] S. Fogelmark refused to take γλαυκός or its compounds in any colour-sense, *Studies in Pindar*, 33-4.

[556] Scholiast, φοβερόφθαλμοι; Myers, *fiery-eyed*. Cf. Myers on 6.45, *bright-eyed*.

Pisander

[557] See Pauly-Wissowa: 19.144-5.

Quintus Smyrnaeus

[558] This passage is discussed more fully supra sub Cornutus, Addendum.

Sophocles

[559] The Scholiast explained γλαυκῆς by reference to 'sparkling,' διὰ τὴν λαμπρότητα. L. Campbell and E. Abbott said, "γλαυκῆς probably refers to the effect of colour produced by the bloom on grapes when fully ripe," (1886). R.C. Jebb, "i.e. the γλεῦκος or 'must', newly pressed from the ripe grapes," (1892). F.W. Scheidewin and A. Nauck, "blue new wine/must," (1912). P. Masqueray, "l'épaisse liqueur du raisin transparent," (1924). J.C. Kamerbeek, "The foam and the colour gave rise to the simile," (1959). Kamerbeek referred to Alcaeus fr. 115.8 as a possible example of γλαυκός being applied to grapes, but there the adjective is more likely to be describing the vines themselves. Cf. Maccius apud AG 9.249.1, and see my comments supra, 79.

[560] "Sophoclea," *CQ* 4 (1910), 162-4.

[561] *Op.cit.* 164.

[562] See supra, 66.

THEOCRITUS

[563] Cf. Diodorus Siculus 1.12.8.

[564] At first glance this passage may appear to give support to the Byzantine scholar's note that χαροπός and γλαυκός were synonymous, (ad Apollonium Rhodium: *Argonautica* 1.1280), but one must remember first that as late a writer as Nonnos distinguished between the two, secondly that pseudo-Theocritus is not nearly as late as Nonnos, and thirdly that no other example within our period supports the view that the words had more or less the same meaning. The whole tone of Theocritus's poem is one of bombastic conceit, an attempt, quite unsuccessfully made, to convey the awkward romantic phraseology and literary posturing of a vain young country bumpkin. Theocritus himself used the devices of loose expression and non sequitur to give verisimilitude to his portraits of rustics, another feature of his work which pseudo-Theocritus appears to have imitated. I take it, therefore, that "eyes more amber than those of blue-eyed Athene," is a joke. The cowherd is very much caught up with his own beautiful appearance, and compares his eyes with those of Athene, employing her stock epithet without regard to the sense of what he is saying.

TRYPHIODORUS

[565] Cf. Dionysius Periegetes: *Orbis Descriptio* 1119, and see my note ad locum.

[566] Cf. Pliny, "causam nominis adferunt ... alii quia sit quiddam in purpura illa non ex toto igneum, sed in vini colorem deficiens," *NH* 37.39 (121). This was repeated by Isidore: *Etymologiarum Libri* 16.9.1.

[567] Supra, 32.

[568] *Studies in Pindar*, 16.

TYRTAEUS

[569] West's note ad locum, *Iambi et Elegi Graeci*, 2 vols. (Oxford 1971-2), 2.150.

XENOPHANES

[570] For other examples of Northerners with the same colouring, see my Addendum to Adamantius.

NOTES TO CHAPTER THREE

Cross-references to Chapter II are given for the sake of those who wish to check particular points, but they are not necessary to an understanding of this chapter's main argument.

1 Supra, 4.

2 Nor do I propose to include 'γλαυκῶπις Athene', found on an ostrakon of the sixth century B.C., Wilcken: *Griechische Ostraka*, 2. no. 1149, since this is almost certainly Homeric usage passed into prose, and one does not have a full knowledge of the circumstances surrounding the ostrakon's being inscribed.

3 The hereditary γλαυκοί eyes are part of a list which includes baldness and squinting and 'other physical peculiarities.' Physiognomica inevitably latched on to oddities of shape and appearance, and in *Epidemiae* 2.6.1., γλαυκότης is seen as a weakness in conjunction with faulty speech or falling hair.

4 I.e. γλαυκιόων used of lions.

5 A reasonable assumption, as they associated γλαυκοί eyes with foreigners, and found them odd.

6 See supra, 30-1.

7 *Equites* 523.

8 *De Coloribus* 6 (779b.13).

9 For example, see J. Pollard: *Birds in Greek Life and Myth*, (London 1977), 18-24.

10 Apud Athenaeum 9.391c.

11 Since he had reddish hair too, it is possible that he came from somewhere in the North of Greece or from Southern Russia, having been captured when very young and shipped to Egypt as a slave.

12 It is difficult to know whether the proper name Glaukippos arose because the original owner possessed steel-grey horses or ones with light-blue eyes.

13 Hesychius recorded ἐγγλαυκῶσαι = ἐμβλέψαι but there is no knowing from which author he got his example. Certainly, with such an equivalent meaning, it cannot have been Diodorus. Other examples of ἐν + colour-term are later than Diodorus, with the possible exception of pseudo-Aristotle: *Physiognomica* 6 (812b.10) = ἔνωχρος and *De Coloribus* 6 (797b.13) = ἐμπυρρός.

14 Bacchylides, Euripides, Pindar, Sophocles, Euphorio, Hymnus Atheniensis in Apollinem, Limenius, Nicander.

15 Supra, 32-3.

16 This notion seems also to be at the back of Plutarch's explanation of Empedocles. See my comments, supra, 73.

17 Supra, 36.

18 One is the colour of glass (ὑαλίζει) which could be blue or green. Another is of a darker blue (κυανώτερον)—rather a puzzle, since no cataracts are actually dark blue. But Demosthenes may have meant simply to draw a contrast between the extremely pale shades implied by ἀερίζει, ὑαλίζει, and ἔκλευκα, and a condition in which the colour was rather more pronounced. Κυανώτερος, however, does seem a rather drastic word to use under the circumstances. It is perhaps just possible that the growing whitish-blue/green of a cataract seen in a dark blue eye may have caused him to apply *blue* to the cataract rather than keeping it strictly for the iris itself. Cf., however, Hippocrates: *De Visione* 1 = Littré 9.152 in which he said, "Pupils which of their own volition become κυανίτιδες do so quickly and, having turned that colour, are incurable." Pseudo-Hippocrates contrasted this colour with θαλασσοειδής by which he may have meant *green* or, more likely, a different shade of

blue. Littré translated κυανίτιδες by 'd'une teinte bleuâtre foncée,' and commented that the passage was very obscure, but that it could be describing true glaucoma as opposed to cataract (θαλασσοειδής), *op.cit.* 137-8.

[19] Antoninus Liberalis, Cyranides, Galen, Lucian, P. Ross.Georg., Pausanias, Philostratus, Plutarch, Pollux, Ptolemy, Rufus, Vettius Valens.

[20] If I am right in suggesting that *IG* $12^8.51^{22}$ had already used γλαυκάνεα for patinated bronze objects.

[21] Ever since Homer, in fact, although he had used γλαυκός only once, and then under rather special circumstances. Other poetic users were Hesiod, pseudo-Empedocles, Euripides, Sophocles, Aristophanes, Lycophron, Phanocles, Theocritus, Moschus, pseudo-Moschus, Meleager, Parthenius, Philodemus, and the Anacreontea. See also G.-C. Picard: *L'art romaine*, plate 30.

[22] Supra, 73.

[23] For example, Antoninus Liberalis, Gregory Naziazenus, and Antipater of Sidon.

[24] Cf. Aratus: *Phaenomena* 369 and 594, two stars in the same constellation, and Himerius: *Declamationes* 12 (13). 37.

[25] Hippocamps which were, he said, very like dolphins. He was describing a painted picture, so the creatures certainly had coloured eyes of some sort.

[26] Including a reference to painted olive-trees. See my remarks supra, 40 and 214, note 189.

[27] Mentioned by *Cyranides* in this century and by Aelian in the next. There are many earlier descriptions of it. See D'Arcy Thompson: *Greek Fishes*, s.v.

[28] For my comments, see supra 18-19.

[29] As I suggested supra, 53. See also F. Bamford: *Poisons, their isolation and identification*, 2nd ed. (London 1947), ed. 109.

[30] See E. Browning: *Toxicity of Industrial Metals*, 2nd ed. (London 1969), 147. References to ancient copper vessels—*Iliad* 18.349; *Odyssey* 8.426; Plutarch: *Demetrius* 24.3; *P.Ox.* 1657.1. The danger from these utensils is not confined to the ancient world, or indeed to that of Mrs. Beeton. In 1955 fifty five schoolchildren were reported as having been affected after their midday meal which was cooked in copper pans, J.D.P. Graham: *The Diagnosis and Treatment of Acute Poisoning*, (Oxford 1962), 280.

[31] Cf. Archestratus: *Hedypatheia* frs. 28.5 and 41.7 for a similar term, there used of new oil made from black olives.

[32] *Apollonii Vita* 7.42, and see my comments supra, 69.

[33] We are reminded by Galen of the γλαυκοί eyes of Northern Europeans who have in their constitution a particularly cold mixture of elements, *In Hippocratis Epidemias 3, Commentarius* 3.70 = $K17^1.726$.

[34] Anatolius, Apsyrtos, Heliodorus, Hippolytus, Philostratus Junior, and Plotinus.

[35] See my remarks supra, 45. Dorotheus Sidonius, Hephaestion, Hippolytus, and Ptolemy conjoined πυρρός and γλαυκός. Cf. Heliodorus: *Aethiopica* 7.10.4. 'Longus'; *Daphnis and Chloe* 2.32. Plutarch: *Marcus Cato* 1.3. Notice also the portraits of Achilles and Sthenelaus by Philostratus: *Gymnasticus* 4.4. 'Leonine' was well-known to be the impression which sculptors of Alexander the Great wanted to convey. See E. Schwarzenberg: "The Portraiture of Alexander," *Alexandre le Grand: Image et Réalité*, Entretiens sur l'antiquité classique, Vol. 22 (Geneva 1976), 249-51.

[36] In addition to the usual eyes, Anon. Astrologer, Gregory of Nyssa, Himerius, Iamblichus, and Pelagonius.

[37] For a selection of texts, see Appendix C.

[38] For references, see Appendix C.

39 The idea was not new. See pseudo-Aristotle: *Physiognomica* 1 (805a.). See also A. MacC. Armstrong: "The Methods of the Greek Physiognomists," *G&R* n.s. 5 (1958), 52-6.

40 For example, *C.C.A.G*: 7.91^{5-6}, and Phoenix of Colophon IV.132.

41 There are other references of uncertain date which should be mentioned but which do not change the picture. Pseudo-Astrampsychus (post second century A.D.) mentioned a stone, *adamas*, also called γλαῦκος which was rather like a hailstone. I suggested (supra, 35), that this may have been a form of opaque corundum, perhaps light blue or smoky grey in appearance. Pseudo-Athanasius (post fourth century A.D.), 'Longus', and *P.Mag.Paris.* used γλαυκός in reference to human beings. The latter also called a cat γλαυκῶπις but, as I pointed out (supra, 65), the colour of cats' eyes varies a great deal, so there is no guarantee that γλαυκῶπις here meant *green*. *Hipp.Cantab.* noted the γλαυκοί eyes of some horses as being unable to stand astringent lotions, an accurate observation, as light-coloured eyes are more susceptible to pain than dark.

42 Galen: *De Atra Bile* 2 = K5.110. *P.Holm.* 21.42-3 in conjunction with 19.28.

43 Supra, 113-14.

44 For the full quotation, see infra Appendix C.

45 *Enneads* 4.4.19.

46 The problem of Vergil's green horses 'honesti spadices glaucique', (*Georgics* 3.82), described as *viridis* by Aulus Gellius (2.26.18), is one of Latin usage not of Greek and has no relevance to either of these passages.

47 On Athene and water, see L.R. Farnell: *The Cults of the Greek States* 5 vols. (Oxford 1896-1909), 1.265-70. A.B. Cook suggested that the eyes of this statue were of precious stone or vitreous enamel, *Zeus* 3 vols. in 5 (Cambridge 1914-1940), 3.216-18.

48 12.22, s.v. σίνηπι.

49 Aristotle, pseudo-Athanasius, Iamblichus, Galen, and Plutarch.

50 Cornutus, Plutarch.

51 On dead metaphor and metaphorical clichés, see M.S. Silk: *Interaction and Poetic Imagery*, 27-34.

52 Demosthenes Ophthalmicus, Diodorus Siculus, Plutarch, Ptolemy, and Vettius Valens. The usage by Aristeas, as I explained supra, 26-7, is unlikely to refer to any specific disease but simply means 'were blinded'. The picture intended by the verb, however, is no different from the others.

53 Supra, 62-3.

54 Supra, 36-7.

55 *Griechische Wortbildungslehre*, 109-12.

56 *HA* 5.1 (780a.15-18). Cf. the Savafid ophthalmologist Bahā al-daula who mentioned that Day Blindness is most common in people with blue or grey eyes, an observation made by earlier writers, too, *Khulasat-i-Tajarib* (1501 ?), quoted by C. Elgood: *Savafid Medical Practice*, 61.

57 Aristotle, who also applied it to human beings. Cf. ἑτερόφθαλμοι, Pelagonius.

58 Dorotheus, Hippolytus, *C.C.A.G.*

59 This adjective was used by Xenophon of hares' eyes, which I have tried to account for by supposing that he saw a particular group of the animals, those especially subject to wall-eye. It was also used by Dioscorides to describe the glaucescence of plant-leaves. Both uses are well-attested by γλαυκός alone.

60 See further supra, 36.

(a) Notice ἐγγλαυκῶσαι = ἐμβλέψαι and ἐνεγλαύκως = φοβερὸς ἰδεῖν, both recorded by Hesychius.

61 Definition of γλαυκῶπις and γλαυκιάω, being mainly verse-words, is postponed.

[62] *Berlin Papyrus* 2.1-2. "Γλαυκοί parents will produce γλαυκοί children," Hippocrates: *De aeribus, aquis, locis* 14 = Littré 2.60.

[63] See infra 42-5.

[64] Cf. Tyrtaeus, Homeric Hymn to Apollo, and a sixth century ostrakon = Wilcken: *Griechiesche Ostraka* no. 1149.

[65] Fragment 22 (a).

[66] On Ibycus, see D.L. Page: "Ibycus's Poem in honour of Polycrates," *Aegyptus* 31 (1951), 158-72.

[67] Supra, 79.

[68] *Theologiae Graecae Compendium* 9.

[69] See A.B. Cook: *Zeus* 1.34-56. The quotations are from Cook. Zeus was also shown wearing a blue cloak, for much the same reasons, Cook: 1.56-62.

[70] Porphyrius of Tyre commented thus on the olive-trees in *Odyssey* 13.102-112. "In summer the white of the leaves is turned upwards, but in winter the whiter [parts] turn over. Therefore, in their prayers and supplications, men hold in front of them olive branches as an augury that the darkness of their perils will be transformed into white [light]," *De Antro Nympharum* 33. Bacchylides seems to have created his effects by a careful combination of the commonplace and the unusual. See further J. Stern: "The Imagery of Bacchylides's Ode 5," *GRBS* 8 (1967), 42-3.

[71] See Diogenes Laertius: *Vitae Sophistarum* 8.48. Cf. Cornutus who linked the olive with heaven in the same way, *Compendium* 9.

[72] To my references in Chapter II, add *Dithyramb* 4.38 which is largely incomplete but does not encourage one to suppose that there is anything unusual about this usage.

[73] *Studies in Pindar*, 31.

[74] See J. Duchemin: *Pindare, poète et prophète*, 196.

[75] *Op.cit.* 207.

[76] *Dionysiaca* 1.246; 42.141.

[77] *Theologiae Graecae Compendium* 20.

[78] See supra, 45.

[79] See LSJM s.v. κήδω for references. B.L. Gildersleeve: *Pindar, the Olympian and Pythian Odes*, (New York 1890). On Pindar's deliberate employ of such a technique, see further R.F. Renehan: "Conscious Ambiguities in Pindar and Bacchylides," *GRBS* 10 (1969), 217-226.

[80] See further J. Stern: "The Myth of Pindar's Olympian 6," *AJPh* 91 (1970), 332-40. Stern discussed various aspects of Pindar's language in this ode, but not his use of colour-terms. See also J.H. Finley: *Pindar and Aeschylus*, 116.

[81] *Op.cit.* 334. Cf. *Pythian* 4.244 in which the λόχμη is the lair of a ravening serpent.

[82] As was pointed out by Puech in his Budé edition (1931), 82, note 4. It is likely that verse 55, too, intends a contrast between colours, this time between light and dark, ξανθός and παμπόρφυρος (= *dark* crimson, not 'wholly'). See also the comments of C.A.P. Ruck: "On the sacred names of Iamos and Ion," *CJ* 71 (1976), 237-8.

[83] See supra, 108, 124-5. The Scholiast missed the point entirely. He suggested that γλαυκῶπες either meant πυρώδεις because the Moon was called γλαυκή, or that γλαυκῶπις was derived from the verb γλαύσσειν. But see my note on Empedocles, supra 234, note 476.

[84] The Scholiast was quite clear that this referred to the eye, since he used γλαυκόφθαλμος as a synonym. W.G. Cookesly glanced at the verbal reminiscence in his note ad locum.

[85] C.M. Bowra pointed out that the preceding simile of a ship suggests "a clearer picture of the huge snake with scales glittering as if they had been made by

workers in metal and wood," *Pindar*, (Oxford 1964), 245. This is true and could perhaps remind one of an image with eyes of lapis lazuli or some similarly coloured enamel. But it is the peculiarity of Pindar's using γλαυκώψ instead of γλαυκός which needs to be explained and this has nothing to do with colour but with word-usage. Γλαυκώψ is odd and properly accountable in this passage only be reference to Pindar's memory (or re-reading ?) of his earlier composition.

[86] *Pindar*, 242.

[87] It is not satisfactory, therefore, to adduce for comparison Pindar's γλαυκῶπες δράκοντες in *Olympian* 6 and *Pythian* 4, as most commentators do. The Scholiast's 'φοβεροί' shows that he had missed the point.

[88] See supra, 32-3.

[89] As was pointed out by L. Radermacher in his edition of the play (Berlin 1909). Unfortunately, he took the term to mean *glancing* rather than *blue*. P. Masqueray's Budé translation (1924) missed the link—"aux feuilles pâles ... aux yeux brillants"—but the earlier versions by Jebb (3rd ed. 1900) and F. Storr (Loeb ed. 1912), while mistaking the colour, did repeat it; "grey-leaved ... grey-eyed."

[90] Supra, 66. Radermacher (Berlin 1914) linked "blue must" with the eruption of poisonous blood from sores, note ad *Trachinias* 703 sq.

[91] *The Fragments of Sophocles* 3 vols. (Cambridge 1917), 2.42-3 ad no. 371. The fragment comes from *Laocöon*. Pearson's suggested translation runs, "Poseidon, who holdest sway on lofty crags over the entrance to the blue waters of the sheltered cove."

[92] See Pearson: *op.cit.* 2.130 ad no. 476. The fragment comes from *Oenomäus.*

[93] *De Euripidis fabula satyrica, quae Cyclops inscribitur, cum Homerico comparata exemplo*, (Wiesbaden 1965), 42.

[94] *The Imagery of Euripides*, 25.

[95] Translation into English is impossible, for whereas Greek γλαυκός can mean both *glaucous* and *light blue*, English needs two entirely different words which, in addition, are incapable of conveying the same emotional significance as the Greek.

[96] A.C. Pearson, (Cambridge 1903), ad locum. Cf. the tone of Sophocles: *Fragmenta* 342, 435.

[97] "Der lichtglänzende Meerespiegel," according to Wecklein, (Leipzig and Berlin 1907), who thereby missed the picture.

[98] "γλαυκὸν ἐπ 'οἶδμ' ἅλιον" echoes earlier rhythms, as A.M. Dale pointed out, (Oxford 1967).

[99] R. Kannich followed Wecklein in taking γλαυκός as referring to the glittering appearance of the sea's expanse, [*Helen* 2 vols. (Heidelberg 1969)], an odd misunderstanding, as γλαυκός is so obviously a colour-contrast with κυανόχροος and πολιός.

[100] Philostratus: *Vita Apollonii* 2.5. See also supra, 114.

[101] *De Antro Nympharum* 33.

[102] Βομβέω has other meanings, of course, but it is clear that mention of the sea causes Mnesilochus to cry "Boom, boom!" Γλαυκῶπις in verse 317 is a routine epithet for Athene. *Ranae* 665 is a quotation from Sophocles's *Laocöon*, upon whose γλαυκᾶς one Scholiast commented "γλαυκῆς" and another, "μελανιζούσης", the one being as unhelpful as the other.

[103] Supra, 82-3.

[104] Supra, 92.

[105] See supra, 131.

[106] The notion of waves reared high enough by two winds to reveal seaweed which is then cast ashore may owe something to *Iliad* 9.7. Homer's κελαινός of the angry wave and Theocritus's γλαυκός of the calm therefore stand in direct contrast with one another.

[107] In 11.43, for example, the sea is envisaged by Polyphemus almost as a rival lover swelling and gasping (ὀρεχθεῖν) upon the shore, and γλαυκός seems to be little more than a conventional adjective added for its own sake. Polyphemus's colour-terms throughout the *Idyll* contribute little to one's appreciation of the story—white as curds (20), grey wolf (24), white snow (48), red poppies (57), blue sea—and this banality may be part of the joke. He cannot hope to win the maiden's love, poor fellow; he has no style.

[108] See supra, 116.

[109] Supra, 86.

[110] Oppian's other references to the blue sea, 4.444 and 5.107, do not appear to be significant.

[111] See my remarks supra, 31. An anonymous Byzantine poet, describing the type of horse "κράτιστος εἰς θέατρα καὶ μάχας," did not mention the colour of his eyes, but said simply that "τὸ δ'ὄμμα γοργόν, ἐκκρεμὲς [i.e. with the bone arched above it; cf. *A.G.* 6.64 (Paulus Silentiarius)], πόρρω βλέπον," apud Cramer: *Anecdota Graeca* 4.325.

[112] Adamantius 1.16.

[113] Amber = χαροποί. Dark blue = κυανώπεας. Light blue = γλαυκούς. Red-brown = δαφοινούς. Dark red = αἴθωνας. Fiery red = πυριλαμπέας. Amber = χαροπούς χαροποῖσι. Honey-gold = μελιχρύσοισιν.

[114] See supra, 105. The 'blue' light of the Moon lingered as a poetic convention. The late Byzantine verse-novelist Nicetas Eugenianus invented γλαυκοφεγγής to describe it, *Drosilla and Charicles* 8.113.

[115] Supra, 94-7.

[116] Colluthus used γλαυκός of divine eyes, the *Hymn to Isis* of Tethys, and pseudo-Manetho of the planet Venus—this last, another γλαυκιόων.

[117] Verse is poorer than prose in compounds and variations of γλαυκός. Γλαυκῶπις and γλαυκιόων were both originally poetic. Pindar called the olive γλαυκόχροος and may have been imitated by Nonnos. Nonnos also called the olive γλαυκωπός. Gregory Naziazenus used γλαυκότης, the *Hymn to Isis* invented γλαυκώλενος and pseudo-Empedocles γλαυκήπορος. Otherwise, verse stuck to γλαυκός, γλαυκῶπις, or γλαυκιόων.

[118] Cf. Freud's notion that colours seen in dreams are traceable to something seen in one's memory which acts as a visual stimulus, *The Interpretation of Dreams* (Collected Works 5, London 1953), 547. Cf. too, Jung's account of an experiment by Guinon and Woltke in which an hysterical patient regularly saw a picture of her mother in a blue glass (= blue sky) held in front of her, *Psychiatric Studies* (Collected Works 1), 12. Many people, especially women, associate numbers, days, months, names, etc. with colours and thus remember them vividly, P. McKellar: *Experience and Behaviour*, (Penguin Books 1968), 126, 173-4.

[119] Quoted by R.W. Pickford: *Psychology and Visual Aesthetics*, (London 1972), 87.

[120] J.G. Beebe-Center: *The Psychology of Pleasantness and Unpleasantness*, (New York 1932), 131.

[121] R.H. Alschuler and L.A.W. Hattwick: *Painting and Personality: a study of young children*, revised and abridged ed. (Chicago 1969), 15-17. Cf. Beebe-Center: 306-7. Response to colours is valid as an indication of emotional response only in 'healthy' individuals. With the mentally sick it does not appear to work. According to G. Cerbus and R.C. Nichols, "the strong evidence for reduced use of colour by depressed patients concurs with colour responsiveness as an indication of response to the impersonal environment since the depressed patient is withdrawn and is uninterested in the external environment. Increased use of colour has not been found with hysterical or anxious individuals, nor with groups of neurotics or schizophrenics, disclaiming any association between colour response and affect," 'Personality variables and response to colour,' *Psychological Bulletin* 60 (1963), 573.

See also A.L. Gary and J. Glover: "Melanin as a predictor in the acquisition of developmental skills," *Journal of Psychology* 90 (1975), 185-90, and A.L. Gary, L. Davis, T. Howell: "Melanin distribution and sensitivity to group therapy," *Journal of Psychology* 96 (1977), 315-20.

[122] Alschuler-Hattwick: 23.

[123] *Ibid.* 34.

[124] *Ibid.* 24, 27, 28.

[125] Supra, 137. Notice, too, the associations of *blue* in English popular phrases such as 'feeling blue' or 'in a blue funk.'

[126] For example, to the alchemist, sky-blue was the quintessence, divine spirit extracted from alchemic chaos, [J. de Rupescissa (died 1375), quoted by Jung, *Collected Works* 11.100]. According to Dominic Gnosius, "Finally there will appear in the work that ardently desired blue or cerulean colour which does not darken or dull the eyes of the beholder by the healing power of its brilliance .... Rather does it sharpen and strengthen them." [Quoted by Jung, 14.14]. To the seventeenth century mystic, blue-green represented liberty and the unconscious, [Jung, 9^{1}.322], and to Jung, "blue is the colour of Mary's celestial cloak; she is the earth covered by the blue tent of the sky," 11.71. This association with the sky probably accounts for the colour's being connected with spirit and soul. See Jung: *The Structure and Dynamics of the Psyche*, 2nd ed. (London 1969), 211 and *Ibid.*, note 122. Cf. the Talmud, "Why is blue specified for the holy fringes? Because it is the colour of sea and sky, suggestive of the sapphire of the Throne of Glory," *Menahot* 43b. To the sixteenth century Jewish Kabbalist Moses Najara, "blue is not merely a colour; it is a mystery." Rorschach tests, it is reported, may show that, "those people who form their responses around ... the greens and blues ... have a detached attitude to the world, having a set way of reacting to the world and not usually changing when new conditions arise. Usually, they are cold and reserved in their relationships with other people, being concerned more with themselves in their interactions with the outside world," J.B. Davidoff: *Differences in Visual Perception*, (London 1975), 181. This does not quite seem to agree with R.B. Cattell's general observation that people who preferred colour to form during Rorschach tests tended to exhibit a stable persona and adaptability to changing conditions, *The Scientific Analysis of Personality*, (Penguin Books 1965), 145. But in general it seems that modern psychologists of colour and the alchemists are agreed that blue represents infinity, peace, and a tranquil emotional state.

[127] "Γλαυκῶπις 'Αθήνη," *G&R* n.s. 1 (1954), 39. His italics.

[128] See the red-figure hydria illustrated in G.M.A. Richter: *The Craft of Athenian Pottery*, (Yale 1923), 71. This apparently contradicts Watson-Williams, since Athene is here shown armed, but the vase comes from the fifth century when many of the earlier apotropaic symbols such as eyes had been dropped, (for the relevance of this, see my argument supra), and Watson-Williams was discussing only Homeric usage on which his comments are still apt. Notice Athene's title 'Εργάνη, Pausanias: 1.24.3; 8.32.4. Aelian: *V.H.* 1.2. *I.G.* 4.990 and 1 (editio minor).561.2. In an extensive note, A.B. Cook recorded the theory of Kretschmer that the word Athene itself is derived from clay-pot, *Zeus* 3.191, note 8.

[129] Translation by H.G. Evelyn-White, (Loeb ed. 1914).

[130] Pollux: *Onomasticon* 7.24 (108).

[131] Stobaeus, quoting Nicholas: 38.56. Pindar, *Olympian* 7.51, recorded that Γλαυκῶπις was the patron of Rhodian metal-workers. Cf. *Homeric Hymn to Hephaestus* (20).2. In later Greek, βάσκανος meant a spiteful person, a backbiter, but never quite lost its original meaning of witch or magician, someone who worked by fascination.

[132] See J.V. Noble: "Pottery Manufacture", apud C. Roebuck (ed.): *The Muses at Work*, (Cambridge Mass. 1969), 136, 144.

[133] Richter: *op.cit.* 45-6.

[134] *Blast Power and Ballistics*, 220. Notice the final verses of the *Epigramma Homericum* quoted supra.

[135] Cf. the staring face of a Maori warrior, intended to frighten a potential enemy.

[136] See J. Harrison: *Prolegomena to the Study of Greek Religion*, 190-1.

[137] The same principle can be seen in modern survivals of belief in the Evil Eye in the Mediterranean area. The following examples are taken from *Folklore*. F. Sessions: "People with blue eyes, perhaps because of their scarcity, are peculiarly dreaded, especially blue-eyed women. Hence, probably, the general use of blue beads as a preventive. Strings of blue beads are hung around horses' necks, or a few are twisted into the mane or tail. One man, asked how these voided the evil, replied; Because the offending eye naturally lighted first upon them, and thus the blow was, so to speak, warded off from the bearer by the bead," 9 (1898) 10. Cf. W.H.D. Rouse: "Notes from Syria," 6. (1895), 174. E.C.Sykes: "Persian Folklore," 12 (1901), 268. C.S. Burne: "Charm against the Evil Eye," 13 (1902), 202. M.S. Thompson: "Notes from Greece and the Aegean: evil eye charms," 19 (1908), 469. A. Murgoci: "The Evil Eye in Roumania, and its antidotes," 34 (1923), 360. E.F. Coote Lake: "Some notes on the evil eye round the Mediterranean basin," 44 (1933), 93, 96. J.K. Gubbins: "Some observations on the evil eye in modern Greece," 57 (1946), 197. See also J.C. Lawson: *Modern Greek Folklore and Ancient Greek Religion*, 12.

[138] W.L. Hildburgh: "Apotropaism in Greek vase-paintings," *Folklore* 57 (1946), 160.

(a) It is worth noting that reducing metals, such as copper, from their oxides would be done under reducing conditions similar to those used in the firing of black-figure pottery, and in consequence influences flowing between the two crafts might well bear marks of similarity. I am grateful to Dr. J.A. Charles for making this point.

[139] *Prolegomena*, 187, 196. Miss Harrison also quoted Ridgeway to the effect that Athene's gorgoneion was the head of a slain beast and thus a primitive, half-magical shield, *Ibid.* 192.

[140] "Γοργὼ ἢ Μέδουσα;" *Eph.Arch.* (1927-8), 128. Cf. W.L. Hildburgh's suggestion that the strength and ferocity of lions and other big cats may have led to their being used on vases for apotropaic purposes, *art.cit.* 166.

[141] *NH* 37.17 (66).

[142] *Ibid.* 18 (67).

[143] Numenius: *Halieutica*, fr. 5.3.

[144] Aristotle: *G.A.* 5.1 (779b.31).

[145] G.F.H. Smith: *Gemstones*, 450-51.

[146] See further W.L Hildburgh: "Psychology underlying the employment of amulets in Europe," *Folklore* 62 (1951), 249, and J.C. Gregory: "Magic, Fascination, and Suggestion," *Folklore* 63 (1952), 145-6.

[147] F. Frontisi-Ducroux: "Contempler l'image d'une divinité risque de causer la cécité, et être regardé provoque parfois la folie. Ce double danger ... correspond en fait à un principe de réciprocité qui semble constant en grec dans la conception et l'expression de la vision. Le terme ὤψ dénote l'oeuil et la vue—l'organe et la faculté—aussi bien que le visage, la face, l'aspect—l'objet de la vision," *Dédale, mythologie de l'artisan en Grèce ancienne*, (Paris 1975), 110. Sophocles linked Athene 'Εργάνη with γοργῶπις (fr.760.2, Nauck) in what sounds like an image of her as patron of crafts with an apotropaic glare. A Sumerian relief of Lilith (?) which, it has been suggested, represents a prototype of Athene, shows the goddess attended by lions and owls, A.B. Cook: *Zeus* 3. plate LXI. The combination is unusual, but one which becomes understandable in the light of what I have just been saying.

Significant, too, may be the information that an 'Orphic' name for the face in the Moon was γοργόνιον, (Orph. fr.253). Was the process of thought, yellow eye of lion + γλαυκιόων = gorgon = apotropaic sign against the Evil Eye? Or γλαυκῶπις Moon = γλαυκιόων (lion) = sign against the Evil Eye? In either case, the link between lion, blue, and gorgon is worth noting.

(a) Notice that in astrological descriptions, as one might expect, blue eyes and red hair or complexion are frequently found together, e.g. *C.C.A.G*: 12.194[4] (Palchus ?). Cf. *Ibid.* 12.193[21] (Palchus).

[148] This is a gloss on the text by Cyrillus. Note also γλαυκή = ἰσχυρά, φοβερά, λευκή, and γλαυκίζειν = ἀμβλυωπεῖν (Diogenianus).

[149] In which case, should one omit the comma between λευκός and κυάνεος in Suidas and understand it as *pale blue*? Cf. Plato: *Timaeus* 68c.

[150] See Chantraine *Dictionnaire étymologique de la langue grecque* s.v. γλαυκός. See also pseudo-Aristotle: "The air in the Pontus is thick and λευκός so that the surface of the sea has the same appearance," *Problemata* 23.6 (932a.24 sq.).

[151] Cf. perhaps Hesychius: γλαυσόν = λαμπρόν, θρασύ, ἴταμον.

[152] K. Latte, in preference to earlier opinion, dated Hesychius to the sixth rather than the fifth century A.D., *Hesychii Alexandrini Lexicon* Vol. I (København 1953), vii-viii.

[153] *Et.Gud.* s.v. γλαυκῶπις. *Et.Mag.* s.vv. γλαυκός, γλήνη. S.v. γλαύσσουσιν, γλαύσσειν = φαύσκειν. Schol.Ap.Rhod: *loc.cit.*

[154] *Argonautica* 1.1281. The phrase which precedes διαγλαύσσουσι, "ἐκ περάτης ἀνιοῦσα," gave rise to the comment in *Et.Mag.*Codex V s.v. γλαύσσουσιν: "περάτη, νῦν μὲν ἡ ἀνατολή. δύναται δὲ ἐπὶ δύσεως καί ἐπ' ἄρκτου καὶ μεσημβρίας περάτη καὶ τέλος λέγεσθαι."

[155] *Imagines* 12. Cf. pseudo-Aristotle: *Problemata* 23.6 (932a.24 sq.). Leprosy shows itself 'through' a man's skin or hair, pseudo-Aristotle: *Problemata* 10.32 (894a.39). LXX *Genesis* 30.32 describes a goat which is 'speckled and spotted,' διάλευκος καὶ ῥαντός, the white appearing as it were from beneath the other. Cf Strabo: 17.1.31.

[156] Plutarch: *Flaminius* 4.6. Cf. *Moralia* (De facie quae in orbe lunae apparet 5), 921f.

[157] The Scholiast commented, "ἀκάρπιστα δὲ πεδία τὴν θαλασσάν φησιν, ἐπεὶ πεζεύειν αἱ νῆες δοκοῦσιν ὀχήματος τρόπον." It might be argued that the parallel uses of πεδίον are qualified by some explicit reference to the sea, or by such words as 'navigable' or 'unharvested,' and that in consequence πεδίον here should not be so understood. This is quite true, but the context is clearly that of a sea-voyage and one can therefore argue that, in the light of the other suggestive evidence, διαγλαύσσουσι and πεδίον are part of an image transferred, perhaps unconsciously, from land to sea, as epithets are often transferred as part of regular poetic technique. Cf., for example, 'ἁλὸς πολιοῖο κέλευθα,' Quintus Smyrnaeus: *Ilias* 9.443.

[158] PY Cn 285.4 and Jn 706.8, 832.5. MY Z [713], with an uncertain appearance at MY Ge 605.6A.

[159] *Oxford Classical Dictionary*, 2nd ed., (Oxford 1970) s.v.

[160] See J. Chadwick: *Documents in Mycenaean Greek*, 2nd ed. (Cambridge 1973), 104-5. Oxen, too, received colour-names, L.R. Palmer: *The Interpretation of Mycenaean Greek Texts*, (Oxford 1963), 182.

[161] P.Cair.Zen. Oppian of Syria.

[162] Hesiod merely imitated him, so his usage does not represent a separate case.

[163] In Ionic, Γλαῦχος was written and pronounced Γλαοχος throughout the Classical period, M. Lejeune: *Phonétique historique du mycénien et du grec ancien*, 231. Unfortunately the absence of υ from this does not provide sufficient evidence to create a bridge between *karauko* and *karoko*.

NOTES TO APPENDICES

A.

[1] *Hellenosemitica*, 249.

[2] *A Handbook of Greek Mythology*, 129, note 27.

[3] Cf. *Bacchae* 542 in which Pentheus is likened to an ἀγριωπὸν τέρας, probably a reference to the eyes in view of Euripides's earlier usage. Notice, therefore, the striking phrase "the savage eye of winter," Cornutus: *Compendium* 6 and cf. Plutarch: *Marius* 14.

[4] Also varieties of plants.

[5] Or, of course, flushed cheeks when he is in the same condition, but notice the usage of Hesiod, Nonnos, Euripides, and Agathias.

[6] Euripides, fr. 1096 is a single word only, as is the comparative in Suidas. Cf. Dioscorides: *De Materia Medica* 2.107 on the lentil (*Ervum lens*). "Phakos .... being usually eaten, is dulling of ye sight, hard of digestion, naught for the stomach," (Goodyer, 2.129); "embotan la vista," (Laguna, 2.98). Basil, according to Theophrastus and Dioscorides, was an abortifacient and had the effect of dulling the sight (ἀμβλυωπές); *CP* 3.15.2; *De Materia Medica* 2.141.

[7] Plato comicus, fr. 228 consists of a single word only.

[8] Sophocles, fr. 1001 and Ion tragicus, fr. 53a (Snell) consist of only one word.

[9] *IA* 584. The reference in LSJM is incorrect.

[10] *Homerische Wörter*, 147.

[11] See C. Kerenyí: *Zeus and Hera*, trans. C. Holme, (London 1975), 128.

[12] All the examples of LSJM are clear except, perhaps, *Ion* 210 which describes Athene "γοργωπὸν πάλλουσαν ἴτυν." Ἴτυς can mean the arch of the eyebrows, (see LSJM s.v. for references) and the participle refers to her eye "poised like a weapon," a reference to the petrifying eye of the Gorgon upon her breastplate.

[13] *Orestes* 261. *Electra* 1257 is much the same picture as *Ion* 210.

[14] A like meaning should probably be assigned to ἑλικωπός, Orphic *Hymn* 6.9 where, used of the Sun, bright-faced might be just as appropriate. See further C.G. Brouzas: " Ἑλίκωπες Ἀχαιοί: a lexicographical study," *West Virginia University Studies*, Philological Papers 2 (1937).

[15] It is difficult to tell whether εὐῶπις refers to the eye or to the appearance, partly because εὐωπός can refer to both, partly because the contexts are ambiguous. In Maximus of Tyre it is an epithet of Hera. One may note that in *Odyssey* 6.113 it follows γλαυκῶπις Athene which is a reference to eyes. Likewise, in *Homeric Hymn to Demeter* 333, ὀφθαλμοῖσιν appears in the same verse, and in Sophocles, *Trachiniae* 523 the context is one of tears, suggesting that in those places, anyway, the word should be taken as referring to eye, not face. Notice, too, ἔλλοψ which may be derived from the colour of the fish's eye.

[16] ἡλιωπός, attributed to both Sophocles and Euripides, is too isolated from its context for one to be sure of its meaning.

[17] So also, it is likely, *Odyssey* 12.60, Anacreon fr. 2.2, *IG* 14.1942.

[18] Cf. the κυανωπός, Verse: 'tear' of a prickly plant, Andromachus apud Galenum: *De Antidotis* 6 = K14.41.

[19] Euripides's usage, however, could have been different. See supra, 234-5, note 487.

[20] See LSJM for the extension of this meaning to other objects.

[21] νέρωπα, Hesychius, = νῶροπα.

[22] In fr. 300.4, Nauck gave πυρωτός instead of πυρωπός. The meaning here, too, is probably 'fiery in appearance.' Cf. *IG* 9^1.880.7.

[23] Cf. Dionysius of Halicarnassus: *De Compositione Verborum* 23. The context seems to require, not "maiden's face," as W. Rhys Roberts translated it in his text, but "of maiden aspect," as he rendered it in his notes, (London 1910), 235 and 315.

[24] See further C. Kerenyí: *Dionysus*, trans. R. Manheim, (London 1976), 54-5, 86-7. I cannot find the reference to Philo's use of ταυρωπόν as recorded by LSJM.

B.

[25] *Anacreontea* 57b.4 and *Lyrica Adespota Alexandrina* 10.3.

[26] The *Thesaurus Linguae Graecae* makes this point, but it seems to have been ignored by later lexicographers.

C.

[27] See M. Minnaert: *Light and Colour in the Open Air*, 167-90. For a more technical description, see further R.A.R. Tricker: *Introduction to Meteorological Optics*, (London 1970), 42-69. A discussion of many of the following texts is given by C.B. Boyer: *The Rainbow*, (London 1959), 33-73.

[28] Cf. Vergil: *Aeneid* 5.87 sq. The point of comparison is the colour blue, not variegation, as Leaf said in his note ad locum Homericum.

[29] Πορφύρεος may refer to a colour or, more likely here, to a range of colours—'changeable', as it might be translated. Cf. Ovid: *Metamorphoses* 6.61-7 and Isidore, "purpureos Iri sacraverunt, quam arcum dicimus, quod is plurimos colores habeat," *Etymologiarum Libri* 18.41.2. [Notice the difference between πορφύρεος and ποικίλος. In the latter, the colours are fixed and immutable; in πορφύρεος there is a sequence of change from one shade to another, with a number of intermediate stages.]

[30] See further, B.E. Harry: "A defence of Aristotle, Meteorologica 3, 375a.6 sq.," *CQ* n.s. 21 (1971), 397-401.

[31] Cf. "χρυσόπτερος Ἶρις," Nonnos: *Dionysiaca* 20.251; 31.110, 124.

[32] Cf. Seneca: *Quaestiones Naturales* 1.3.4. Basil: *Epistulae* 38.5. Ammianus Marcellinus: 20.11.27-8.

[33] Basil is the only Greek writer to mention this colour. Others used the darker κυάνεος or κυανοῦς. Homer: *Iliad* 11.26. Ps. Plutarch.: *loc.cit.supra*. Alexander of Aphrodisias, p. 161.1 (Hayduck). Metrodorus: *loc.cit.supra*.

[34] This is not meant to be an exhaustive gathering of Greek and Latin passages relating to the rainbow. Only those are included which illustrate the variety of individual observation, or refinement of meteorological theory. As far as Basil is concerned, they demonstrate that γλαυκός is not a shade confined to him, the equivalent being found in Latin authors as far back as Vergil. For an interesting but rather limited discussion of the rainbow in relation to colour, see W. Schultz: *Das Farbenempfindungssystem der Hellenen*, (Leipzig 1904), 99-114. See also O. Gilbert: *Die meteorologischen Theorien des griechischen Altertums*, (Leipzig 1907), 604-16.

D.

[35] See H. Wagenvoort: "Caerimonia," *Glotta* 26 (1937), 128-31.

[36] = Migne, *P.G*: 86^2.2131, 2154.

[37] *The Cults of the Greek States*, I.278-9. The reference to Cicero is *De Deorum Natura* 1.83.

[38] *The Poet at Play*, (Leiden 1962), 64-7.
[39] E. Bachmann: *Anecdota Graeca* I.185.
[40] *Iliad* 86.35 sq. Cf. 716.7.
[41] *Iliad* 718.54 and 720.30.
[42] *Iliad* 1279.14-15.
[43] 1389.9-13. Such confusion is best answered by Watson-Williams, *op.cit.*, though even by Eustathius it had to be conceded that γλαυκῶπις is capable of being a colour-term. Confusion disappears when once this simple fact is admitted. See also R. Hildebrandt: "'Αθήνη Γλαυκῶπις," *Philologus* 46 (1888), 201-9. Schliemann stoutly denied any colour-sense for γλαυκῶπις and maintained it meant owl-faced, *Troy* 54, 112-13.
[44] Representation of light-coloured irides on Greek vases is not frequent, but examples may certainly be seen. Swindler had this to say about the eye on vases. "The early painter drew it from memory. He always presented it front view—the most typical view—and placed it in the profile face. The pupil was a black ball which might touch both the upper and the lower lids. The corner of the eye near the nostril was always closed. This was not a very lifelike rendering and a few more enterprising painters .... occasionally used a circle with a dot, Beazley suggests, to indicate a blue or light-coloured eye," *Ancient Painting*, 174 and fig. 309, nos. 7-11.

E.

[45] Cf. Anon. Latin *Physiognomica* 33, and the *Historia de preliis Alexandri Magni*, recension I^3, ed. K. Steffens, (Meisenheim am Glan 1975), 11. Note, too, the anonymous Byzantine *Vita*, ed. J. Trumpf, (Teubner, Leipzig 1974), 3.1. Recensions β, γ, and λ of the *Romance* record much the same contrast, except that some manuscripts offer λευκόν as the alternative reading to γλαυκόν.
[46] Trans. A.M. Wolohojian, *The Romance of Alexander the Great by Pseudo-Callisthenes*, (Columbia 1969), 28 (33).
[47] See Abu 'l-Fida: *Pre-Islamic History*, ed. H.O. Fleischer, (Leipzig 1831), 79.
[48] The Ethiopic version, translated by E.A. Wallis Budge, (London 1896), said: "Each of his eyes was unlike the other, the right being black and the left eye light green," 30. In his version of 1933, Wallis Budge added in parentheses "(or blue)". I do not quite understand P. Green's saying that one eye was grey-blue, the other dark brown, since his sources do not mention brown, only μέλας or *niger*. See *Alexander of Macedon*, (Penguin Books 1974), 55.
[49] *La critica medica nella storia Alessandro Magno*, (Turin 1932), 92-106, especially 96-7.
[50] *System of Ophthalmology*, 3^2.815 and 818.
[51] *The Nature of Alexander*, (London 1975), 150.
[52] See further M.H. Swindler: *Ancient Painting*, 280-3, and V.J. Bruno: *Form and Colour in Ancient Painting*, 53-102.
[53] Besides, only one of Alexander's eyes is to be seen in the mosaic, and this could have been the 'dark' one. It is worth recording here the existence of another tradition, that Alexander had one black and one yellow or light brown eye. Joseph Ben-Gorion wrote, "His right eye was black and looked downwards, and his left eye was like that of an eagle and looked upwards," apud E.A. Wallis Budge: *The Alexander Book in Ethiopia* (London 1933), 257. 'Like an eagle' may mean that it was unblinking, but could also refer to its colour. Eagles have brown or yellow eyes. Cf. the alliterative Middle English *Wars of Alexander*, ed. W.W. Skeat, (London 1886), 605-8:
[His eyes were] of serelypy hewys;
the tane to brene at a blisch· as blak as a cole,

as any yare yeten gold· yalow was the tothire,
And he wald-eyed was.

It is an unusual interpretation of 'wall-eyed' which normally refers to blue, but the poet may simply have meant that the eyes were of different colours. Cf. the Thornton Ms. *Prose Life of Alexander*, ed. J.S. Westlake, (London 1913).

[54] *Le type physique d'Alexandre le Grand*, (Paris 1902), 168.

[55] *Physiognomica* 2 = Förster 1.144.

[56] *CCAG* $11^2.121^8$. Having one eye *glaucus* was, according to the anonymous Latin physiognomist, a mark of the homosexual. 'Qui corpore et vultu sunt virili et qui alterum ex oculis habent glaucum ... qui vultum gerat feminum et qui nigrum quod est intra oculum aliquanto pinguius habeat et qui laevum oculum glaucum gerat,' (85). Cf. *Cyranides* 10.14 mention of an engraved sapphire with the eye of the cinaedeus fish. Was there a pun intended between κιναίδιος—'fish' and κίναιδος—pathic homosexual? Notice the interesting remark in another Middle English work, that Olympias had grey eyes, *The Gests of King Alexander of Macedon*, ed. F.P. Magoun, (Cambridge, Mass. 1929). According to Isaac I, both Hector and Ajax were heterophthalmic, the former being leonine as well, *De Operibus Homericis*, (pp. 87 and 83).

F.

[57] Translated by J.M. Edmonds as 'The Man With the Wall-Eye.'

[58] Plutarch: *Moralia* (De seipsum citra invidiam laudando 21), 547b. Cf. Menander, fr. 782.

[59] Uses of ἀπερυθριᾶν all indicate the same point, namely shamelessness, brazen behaviour, a failure to blush at the appropriate moment. Aristophanes: *Nubes* 1216. Julian: *Oratio* 6 (196d). Apollodorus comicus, fr. 13.10. Lucian: *Judicium Vocalium* 8. Josephus: *AJ* 17.126. Libanius: *Declamationes* 15.43. One exception is Lucian: *Lexiphanes* 4, in which Hellanicus says his eyes are red and need balm to take away the discolouration (ἀπερυθριᾶσαι).

[60] *Prorrhetic* 2.20 = Littré 9.48.

[61] Archigenes apud Oribasium: 44.23.1. [The reference in LSJM s.v. ἀπολευκαίνω is to an older edition. Mine comes from Raeder in *Corpus Medicorum Graecorum* (1931). The whole section reads thus. "The part infected with gangrene is itself livid (πελιδνόν) and is surrounded by a yellowish colour (μηλίζοντα), tending to livid (πελιούμενα), and changing to green (χλωρόν). Round the green area [the flesh] is white (λευκόν) and shrivelled, and what surrounds this last area is swollen and rather red (ὑπέρυθρον). Later the green area turns livid, the white area green, the red turns white (ἀπολευκαίνεται) and the livid area becomes insensible and dry. Later, it turns black (μελαίνεται) and purulent."

[62] Hippocrates: *De Articulationibus* 69 = Littré 4.286.

[63] Rufus, fr. 70.14. Cf. Olympiadorus the alchemist: *De Arte Sacra* 37 (ed. Berthelot). Cf. also Theophrastus's advice that dust should not be put into the vine or, if at all, only when the grape has ripened (ἀπομελανθῇ), *HP* 2.7.5.

[64] Hesychius, ἀποχλωρίας: οὗ ἀπὸ αἰσχύνης ἢ μανίας ἡ χρόα τῆς ὄψεως ἀλλάσσεται. According to Aristotle, the female of blackbirds and coots turn pale (ἀπολευκαινομένων) in tune with the season of the year, (*Zoica*, fr. 350 and HA 9.49, 632b), an observation confirmed by Aelian who said they turn light brown (ὑπόξανθος), *NA* 12.28. I disagree with LSJM s.v. ἀπολευκαίνω, "to be or become all white", with reference to this passage, since a white blackbird is an albino and does not change colour at all. Hierocles tells us that when horses catch the mange their bodies become bald and turn pale (or white), ἀπολευκοῦται, *Hippiatrica Berolinensia* 69.5. This is rather puzzling since, although there is loss of hair as a result of mange, the body does not change colour. Excessive flaking of the skin,

however, which Hierocles went on to mention, could account for the reference to colour. I doubt if the disease is anything like seborrhoea, as the scaly coating formed on the skin then is light or dirty yellow in colour, and may even be blackish. Perhaps one should also mention ἀποχραίνειν because this indicates an intermediate stage between two different colours, as one is shading off and changing into the other. See, for example, pseudo-Aristotle on pomegranates and rose-petals which are at first white (λευκά), but when they begin to ripen, they take on a tinge (χρωζομένων) and alter their colours (ἀποχραίνεται), *De Coloribus* 5 (796a.24). Cf. Hesychius s.v. and Plato: *Leges* 6 (769a).

[65] *P.Holm.* 26.30, and see further my note ad locum.

G.

[66] Apud Förster: 1.113, 117, 119, 125, 149, 197, 243. *Ashhal* is the masculine, *shahla* the feminine, form of the adjective.

[67] Apud Förster: 1.117. Cf. Columella: *De re rustica* 10.100, (*caeruleos hyacinthos*).

[68] Honain's word for glaucoma was *zurqa*. See *The Book of the Ten Treatises of the Eye*, ed. M. Meyerhof, (Cairo 1928), 70.

[69] *The Book of Questions about the Eye*, ed. R.P.P. Sbath and M. Meyerhof, (Cairo 1938), no. 67.

[70] *Ibid.*, no. 68. Cf. pseudo-Polemon apud Förster: 1.243, the pure Greek type had liquid, very mobile eyes (*shahla*).

[71] Notice the Arabic translation of pseudo-Polemon. The colour of a lion's eye is *ashhal* (1.197); a χαροπός eye (*shahla*) shines like the sun (1.149).

[72] E.W. Lane: *Arabic-English Dictionary*. Although Honain used the word *pupil*, he clearly meant the iris, as elsewhere he called the pupil the 'black' (*sawād*) of the eye.

[73] R. Dozy: *Supplément aux dictionnaires arabes*.

[74] *De Physiognomica* 26.

H.

[75] See further Pauly-Wissowa: V^{A}. 2148-9.

[76] *Op.cit.* 7.10 and 8.15. Cf. the list given by John the Actuary: *De Urinis* 1.7.3-35, apud I.L. Ideler, *Physici et Medici Graeci*, and by Avicenna: *The Canon of Medicine* §§ 609-26.

[77] *Op.cit.* 6.2.

[78] See M.F. Campbell and J.H. Harrison: *Urology*, 1. 214-15.

[79] See A. McPhedran and W. Goldie's report in the *Transactions of the Association of American Physicians* 16 (1901), 242.

[80] L. MacKinney: *Medical Illustrations in Mediaeval Manuscripts*, fig. 5 (p. 194, in colour).

[81] MacKinney: *op.cit.* fig. 6 (p. 212, in black and white).

[82] Bodley, Ashmole Ms. 789 folio 364v.

[83] Bodley, Ashmole Ms. 391 folio 10. Cf. pseudo-Urso on the humours. "Ex melancolia naturali, cum non sit perfecta nigra sed glauca, cutis secundum glaucum colorem disponitur .... Ex aqua et terra fit glaucus color que est medius inter album et nigrum," *De Coloribus*, quoted by L. Thorndike: "Some Mediaeval Texts on Colours," *Ambix* 7 (1959), 11 and 13. I am grateful to Miss C. Monsey for checking the Oxford texts.

I.

[84] See Pauly-Wissowa: 3.2363-7 where the date is given as the sixth century A.D.

[85] Cf. the note by A. Erman that, as Ra grows old, his hair turns light blue and is depicted by lapis lazuli, *Ancient Egyptians, Source Book*, (London 1966), 47-9.